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ABSTRACT

This guidebook is based on research on the human brain and the way it processes information. It is noted that current research on the learning process has investigated the differing functions of the left and right brain hemispheres. This research supports the theory that students are inclined to learn through different modalities (tactual/kinesthetic, visual, or auditory) and that teaching styles and classroom environment can be modified to meet the needs of different kinds of learners. The guide provides information on indicators and predictors of learning styles and effective teaching strategies for students with particular learning styles. An overview is presented of learning style inventories and trial lessons which have been developed to determine a student's learning style. A learning style inventory is included, offering a comprehensive approach to diagnosis of an individual's learning style, and an informal checklist for student use provides clues to characteristics which may influence learning style. Classroom activities for students from grades 7-12 are presented, each geared to be effective with combinations of kinesthetic, tactual, visual, and aural learning styles. (JD)

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One Of A Kind

A Practical Guide To Learning Styles

7-12

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Foreword

The primary quest of the education profession has been to determine ways whereby students may learn in a more effective manner. Recently, a great deal of emphasis has been given to appraising one's learning style, then using materials and methods most compatible with that style. It is hoped that this guide will provide the teachers of this state with both a theory base and a pool of activities to help meet the learning needs of their students.

The Oklahoma State Department of Education acknowledges and expresses its appreciation to all those who contributed to this project.

Sincerely,

Leslie Fisher
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Introduction And Background To Learning Styles

Introduction

This one-of-a-kind Learning Styles Guide includes a variety of sections designed to assist all educators to better understand the process of learning. There are many times teachers are concerned about an individual student's progress in the cognitive domain, such as grades or other achievements, yet they seldom inquire about non-cognitive factors such as learning stlye, teaching style and teacher-student interaction are very important to student achievement.

As a result of hereditary and environmental influences, people develop the ability to learn in different ways. The different ways that people learn are referred to as learning styles. Learners develop consistent and definite methods of providing and processing information to the brain.

Although it is fashionable today to discuss learning styles or teaching styles, caution should be exercised to understand the true meaning of "style." Style should not be confused with method. Method is defined as a procedure, usually well defined, specific and far reaching, as an established objective.

The term learning style explains an individual's constant way of handling stimuli in the context of learning or behaviors which serve as indicators of how a person learns and adapts to the environment. Research conducted in the area of learning styles began in the 1800s with Jung, Schiller, Piaget, Freud, Erickson and others. These researchers placed great emphasis on problem solving, creativity, emotional, motivational and social factors.

Experiential models emphasized learning as the result of concrete emotional experiences with cognitive processes, conceptual analysis and understanding. Among the major contributors in this: Piaget, Bruner, Kolb and Fry.

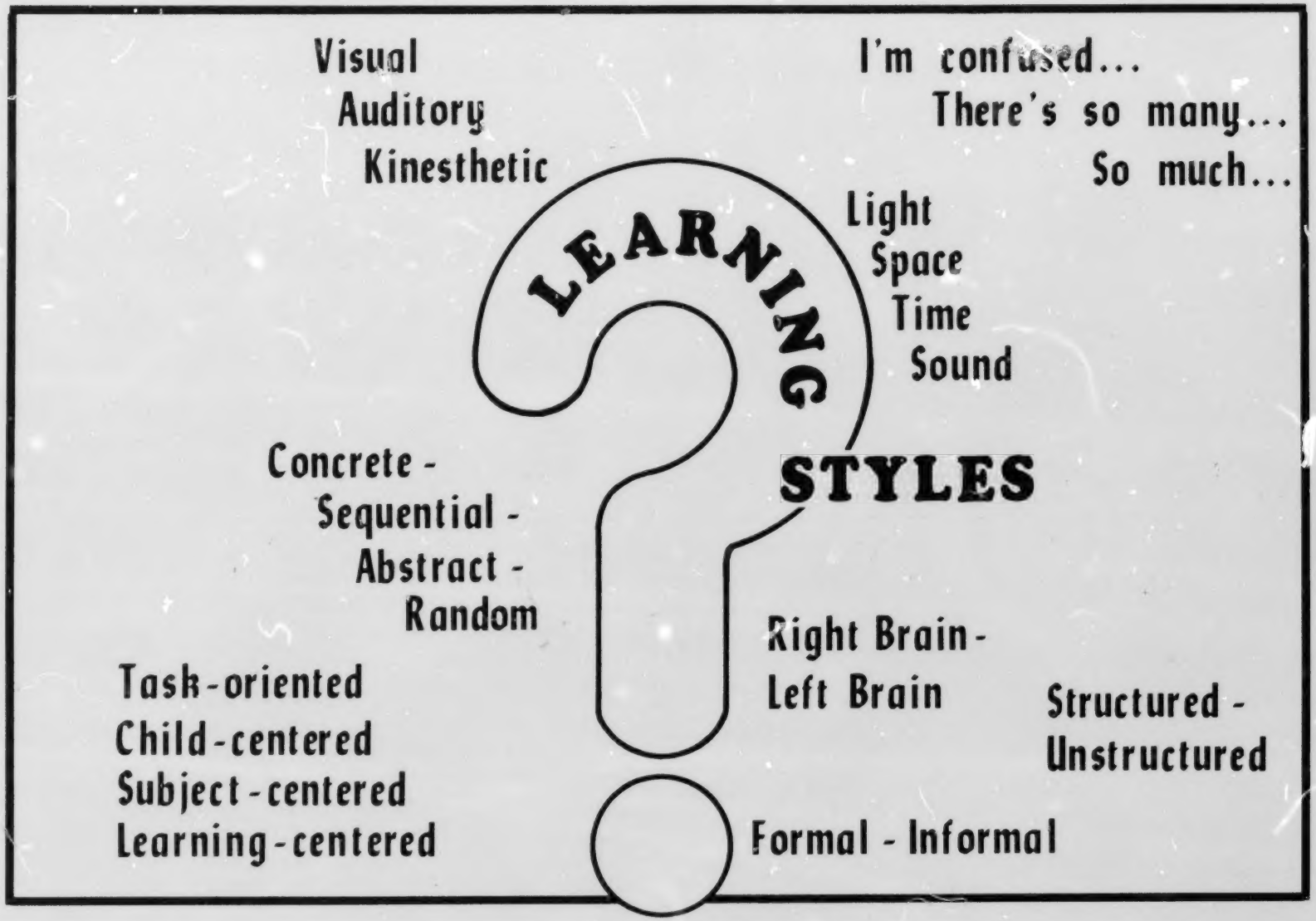
"Learning Styles is much more than just another innovation. It is a fundamental new tool with which to work. It is a new way of looking at learning and instruction, a deeper and more profound view of the learner than known previously. It is a basic framework upon which a theory and practice of instruction can be built. It makes obsolete any single framework for teaching all students. All recent innovations, whether staff utilization, modular scheduling, independent study, or fundamental education, must be rethought in the light of learning style."[1]

Learners may be matched with specific learning styles. An example is the student requiring a systematic, precise format and needing a step-by-step procedure for instruction. In contrast to this extreme, some students do not follow any predictable sequence or pattern. Many students adjust their learning style and work very well with any type of teaching presentation.

There are several identifiable teaching styles. Some teachers demand an exact performance from their students. Teachers at the other end of the continuum provide a structure that allows students to pursue their best style of learning. Some learners function well in any type of learning environment.

The development of this learning styles guide is based on the assumption that research findings pertaining to student learning styles and teaching styles should have important and practical implications for education.

[1] "School Applications of the Learning Concept," Student Learning Styles Diagnosing and Prescribing Program, Reston, VA: NASSP, p. 131.


Visual
Auditory
Kinesthetic
I'm confused...
There's so many...
So much...
LEARNING
STYLES
Light
Space
Time
Sound
Concrete -
Sequential -
Abstract -
Random
Right Brain -
Left Brain
Task-oriented
Child-centered
Subject-centered
Learning-centered
Structured -
Unstructured
Formal - Informal

Learning Styles Theory Overview[2]

Multidimensional Instruments

Child Rating Form
RAMIREZ & CASTANEDA
(Field Independence/Sensitivity and Cultural Differences)

Cognitive Style Interest Inventory
HILL
(Measures distractions, visual, tactual, auditory perceptions; motor coordination; social interaction) 50 min.

4-Mat
McCARTHY
(Uses right-left mode technique)
CONCRETE-REFLECTIVE
ABSTRACT-REFLECTIVE
ABSTRACT-ACTIVE
CONCRETE-ACTIVE

Learning Style Identification Scale
MALCOLM, LUTZ, GERKEN, HOELTKE
(Problem-solving methods, styles identified are based on classification of information reception and use, cognitive development and self concept)

Learning Styles Inventory
RENZULLI & SMITH
(Measures attitude toward 9 modes of instruction) [4-12 grade]
LECTURE DISCUSSION
INDEPENDENT STUDY PROJECTS
[are most significant] 30 min.

Learning Style Inventory [3-12 grade]
Productivity Environmental Preference Survey [Adult]
DUNN AND DUNN AND PRICE
(Investigate Stimuli and Elements)
ENVIRONMENTAL EMOTIONAL
SOCIOLOGICAL PHYSICAL
PSYCHOLOGICAL

Learning Style Inventory: Primary Version
PERRIN
(Based on Dunn, Dunn, and Price for younger children) 20 min.

Learning Styles Inventory
CANFIELD & CANFIELD
(Looks at Conditions, Content, Modes, Expectations)
PEER-AFFILIATION
ORGANIZATION-STRUCTURE
GOAL SETTING-ACHIEVEMENT
COMPETITION-EMINENCE
INSTRUCTOR-AFFILIATION
DETAIL-STRUCTURE
INDEPENDENCE-ACHIEVEMENT
AUTHORITY-EMINENCE

Myers-Briggs Type Indicator
MYERS-BRIGGS
(Personality Dispositions)
EXTRAVERSION-INTROVERSION
SENSING-INTUITION
THINKING-FEELING
JUDGMENT-PERCEPTION

Reading Style Inventory [1-12]
CARBO
(Based on Dunn, Dunn and Price, specifically investigates reading style)

Short Inventory of Approaches & Studying
ENTWISTLE
(Concerns achieving orientation, reproducing orientation, meaning dimension, comprehension style, operation style, versatile approach)

Student Learning Styles Questionnaire
GRASHA AND REICHMANN
(Elicits attitudes toward college courses)
INDEPENDENT AVOIDANT
COLLABORATIVE DEPENDENT
COMPETITIVE PARTICIPANT

TLC- Learning Preference Inventory
SILVER
(Assesses learning preferences [analytic, personal, innovative, pragmatic])
INTUITIVE SENSING
THINKING FEELING

[2]Adapted from: Dunn, DeBello, Brennan, Krimsky, Murrain, "Learning Style Researchers Define Differences Differently," Educational Leadership (February 1981): 374 [Reprinted with permission of the ASCD. All rights reserved.]; Claudia E. Cornett, "What You Should Know About Teaching and Learning Styles," Phi Delta Kappa Educational Foundation, 1983, pp. 32-37 [Used with permission].

Learning Styles Theory Overview[3]

Cognitive Style Instruments

Cognitive Profiles
LETTERI
(Researches thinking patterns, strategies and procedures employed by an individual)
FIELD INDEPENDENCE/DEPENDENCE
SCANNING/FOCUSING
TOLERANT/INTOLERANT
LEVELING/SHARPENING
BREADTH OF CATEGORIZATION
COGNITIVE COMPLEXITY/SIMPLICITY
REFLECTIVENESS/IMPULSIVENESS

Concrete-Operational Reasoning Test and Logical Reasoning Test
SUND
(Reveals formal or concrete operational reasoning)

Gregorc Style Delineator
GREGORC
(Considers distinctive behaviors and dualities)
CONCRETE-SEQUENTIAL
CONCRETE-RANDOM
ABSTRACT-SEQUENTIAL
ABSTRACT-RANDOM

Group Embedded Figures Test
WITKIN, et al
(Field independence and dependence characterize analytical vs. global styles of information processing)
15 min.

Inventory of Learning Processes
SCHMECK
(Grouped by factor analysis into synthesis/analysis, study methods, fact retention, and elaborative processing, reflecting a continuum of student information processing from deep and elaborative to shallow and repetitive)
20 min.

Learning Strategies Questionnaire
KAGAN & KRATHWOHL
(Describes focusing, scanning on continuum of discrete to global orientation)

Learning Style Inventory
KOLB
(Examines hereditary equipment, past experience, environment)
DIVERGERS
ASSIMILATORS
CONVERGERS
ACCOMMODATORS

Matching Familiar Figures Test
KAGAN
(Measures impulsive and reflective styles)

Schematizing Test
GARDNER
(Generalization vs. Discrimination)

Your Style of Learning & Thinking
TORRANCE, et al
(Right-Left Hemisphere and Integrated Information Processing)
20 min.

[3] Ibid.

Learning Styles Theory Overview[4]

Affective Style Instruments

Intellectual Achievement Responsibility Questionnaire
CRANDALL AND CRANDALL
(Assesses internal-external perceptions of control in intellectual and academic situations)

Student Motivation Information Form
WLODKOWSKI
(Motivation of intrinsic or extrinsic)

Paragraph Completion Method
HUNT
(Assesses degree of classroom structure needed [Special Training]

People in Society (Internal/External Scale
ROTTER
(Measures degree of control persons feel over their world)

Perceptual Modality Instruments

Swassing-Barbe Modality Index
BARBE & SWASSING
(Involves visual, auditory and kinesthetic-tactual processing)

Swassing-Barbe Checklist of Observable Modality Strength Characteristics
SWASSING & BARBE
(Checklist of Modalities)

Find Your Modality Strengths
BARBE
(Tests modality strengths)

Learning Methods Test
MILLS
(Tasks involve visual, kinesthetic, phonic and combination presentations of words)

Edmonds Learning Style Identification Exercise
REINERT
(Profile of Perceptual Styles in four categories: written word [reading], visualization, listening and activity [kinesthetic]

SRI Student Perceiver Interview Guide
SELECTION RESEARCH, INC.
(Elicits student perceptions grouped under 16 themes - affective in nature)
45 min.

[4] Ibid.

Methodology

IS TEACHING BY ADAPTING TO LEARNING STYLES A PROVEN METHOD FOR TEACHING?

This is an area which has been researched since 1923. Teachers seek to develop the unique talent of each student through the method by which the student learns best. This has led to many research studies in the area covering processes by which students learn.

Research has shown that approximately 30 percent of elementary school children have visual modality strength, 25 percent have an auditory strength and 15 percent are kinesthetically oriented. The remaining 30 percent have mixed modality strength.

IF I HAVE A STUDENT IN MY CLASS WHOSE LEARNING STYLE IS NOT COMPATIBLE WITH MY TEACHING STYLE, DO I ASK TO HAVE THAT STUDENT TRANSFERRED?

You should not ask for a transfer for that student. Teachers do a good job of adapting teaching styles when they see that students are not learning. For example, in teaching a math process, teachers will usually explain the process orally, then put it on the board. This is sufficient for the auditory and visual learner. The child who is still experiencing difficulty may be the tactual-kinesthetic child who can be sent to the board to do the work.

For those who do not feel comfortable with matching styles, adapting the curriculum material might be the answer. The writing of a new curriculum would not be necessary. The teacher would simply find the activities and resources which would present the material in the style of the learner. (See Activities Section.)

HOW WILL I EVER REACH ALL THE CHILDREN?

I have my teaching style and the children have their learning styles. There is only one of me and so many of them.

But my students are all different. If I allow them to make a decision, some ask:

"When is this due?
How long should the paragraph be?
Where do you want my name?"

IS THIS LEARNING STYLE?

I KNOW! I can provide instruction appropriate to all learning styles. Then I can reach the children.

Yes, because learning style tells HOW the students are learning, not how well or how much. The need for structure is part of their learning style.

Some students need a highly structured environment (consistent, fair but firm). Others need a moderately structured environment (closer to autonomy).

One could call structure teacher directed. Structured students need much teacher direction; unstructured students are more self-directed.

THIS HAS NOTHING TO DO WITH ABILITY!!!

I GET IT -

BE FLEXIBLE!

I understand now. All I have to do is be flexible. I have my room arranged for the environmental comforts, the classroom has been arranged for the structured and un-structured, but then . . .

What about those students who have to act out everything I say?

What about the ones who never seem to understand, even though I repeat and repeat. What do they want me to do, draw them a picture?

YES! TO ALL OF THE ABOVE.

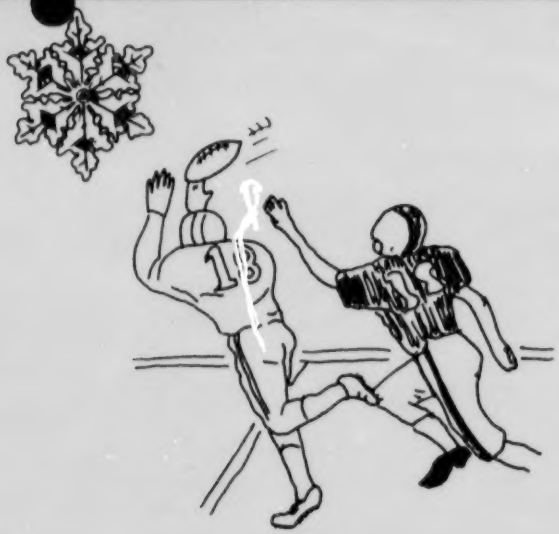
Tell the students how to do it, show them how to do it and draw them a picture. Thus, you will provide for the modalities of learning: tactual-kinesthetic, visual and auditory.

Perception is the key to our learning. Each modality represents a way of perceiving and picking up information or learning. A tactual learner learns by touching and feeling. A kinesthetic learner learns through movement of the body and muscular involvement. A visual learner relies on seeing things and internal visualization. An auditory learner depends on hearing and verbalization for learning.

Most important, always give positive feedback and support.

IMPORTANT!!

The following pages list behaviors connected with different learning styles or modalities. Remember, these are generalizations and clues; they may vary from child to child.



Behavior Indicators Of Modality Preferences[5]

* TACTUAL/KINESTHETIC – These children are hands-on learners. Their motto is "We learn to do by doing."

READING – likes action from the first page on, finds it difficult to sit still while reading, doesn't particularly like reading.

SPELLING – spells by "feel," therefore often is a poor speller.

HANDWRITING – pushes hard on writing utensil, usually has short pencils, has difficulty writing in small spaces.

THE ARTS – moves to music, likes to touch paintings and statues, not too involved unless the involvement can be physical.

MEMORY – remembers what he does, not what is seen or heard.

IMAGINATION – visualizes only with movement.

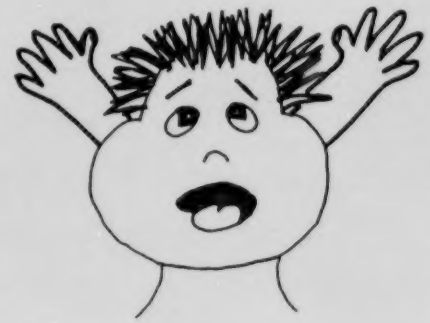
PROBLEM SOLVING – is impulsive, works out the problem physically.

COMMUNICATION – uses many hand gestures, doesn't like to listen, hard to hold this child's attention, will get close to the teacher in conversation.

PREDICATES – uses words like "feel," "get," "take," "I can't get a handle on it," "how does that grab you," "don't take it to heart."

RESPONSIVE BEHAVIOR – is fidgety, in constant movement, can't stay in seat, touches everything, acts out stories, has to try everything, hugs, pulls, jumps, stamps, crawls, etc.; body tension will reveal mood.

PERSONAL APPEARANCE – starts out neat, but ends up with a rumpled appearance.



[5] Teaching Through Modality Strengths: Concepts and Practices. Copyright, 1979, Zaner-Bloser, Inc., Columbus, Ohio. (Reprinted by permission.)

*The authors have added tactual to the text.

Behavior Indicators Of Modality Preferences[6]

VISUAL - these children learn by watching and seeing, whether by pictures, diagrams, verb descriptions or imagined scenes.

READING - likes descriptions because the child imagines the scene; staring into space can indicate extreme involvement.

SPELLING - word recognition is by sight and shape.

HANDWRITING - usually good in size and spacing, has to look good to the child.

THE ARTS - prefers visual arts, likes visual displays, has the ability to see details.

MEMORY - remembers faces rather than names; if given verbal information must write it down or take notes in order to remember it.

IMAGINATION - very good imagination, visualizes in great detail while thinking.

PROBLEM SOLVING - the child is a planner and a list maker, is organized.

COMMUNICATION - is quiet but responsive, describes things simply and cannot listen for a long period.

PREDICATES - the child uses language such as "see," "look," "get the picture," and "as I see it."

RESPONSIVE BEHAVIOR - the child is aware of the environment, observes everything, doodles and the facial expression tells how the child feels (whether happy or angry).

PERSONAL APPEARANCE - the child is neat and clean, usually does not vary in dress style.

[6] Teaching Through Modality Strengths: Concepts and Practices. Copyright 1979, Zaner-Bloser, Inc., Columbus, Ohio. (Reprinted by permission.)

Behavior Indicators Of Modality Preferences[1]

AUDITORY - This child can hear directions and learn from them.

READING - prefers few pictures or descriptions when reading a story likes conversation or dialogue; therefore likes plays; moves lips when reading or verbalizes words in the mind.

SPELLING - sounds out words, therefore uses the phonic approach.

HANDWRITING - has difficulty learning to write, verbalizes the strokes while writing.

THE ARTS - prefers music to visual arts, sees the art work as a whole rather than in detail, would rather talk about it than look at it.

MEMORY - remembers names, forgets faces; memorizes by verbal repetition; remembers more of what is heard than what is seen.

IMAGINATION - thinks in sounds, details are not important.

PROBLEM SOLVING - talks problems out with self or others, finds solutions by hearing what others say.

COMMUNICATION - loves to talk and talks constantly, is repetitive, interrupts others frequently, likes the sound of own voice.

PREDICATES - uses words like "hear," "listen," "it rings a bell," "hear what I'm saying."

RESPONSIVE BEHAVIOR - talks to oneself, and sometimes answers; evaluates what is going on or what to do next; is very verbal, shows emotion through tone quality, pitch of voice as well as other sounds.

PERSONAL APPEARANCE - the clothes are not important, but the child can tell you why those clothes are being worn.

[1] Teaching Through Modality Strengths: Concepts and Practices. Copyright, 1979, Zaner-Bloser, Inc., Columbus, Ohio. (Reprinted by permission.)

Brain Dominance: Implications For Learning[8]

BRAIN RESEARCH: IMPLICATIONS FOR INSTRUCTION

During the past few years, a number of research studies have been conducted to investigate how the two hemispheres of the brain affect the learning process. Those studies indicated that the left and right hemispheres each have specialized abilities which facilitate learning of particular subject matter (see below). However, while the task, or activity, determines which hemisphere has dominance, or control, both sides of the brain are engaged in learning all subject matters.

Although those findings dispute the idea that only one side of the brain is involved in learning at one time, previously assumed by many educators, there is considerable evidence that there are individual differences among people, to the extent that one hemisphere is more differentially aroused than the other. Those findings have important implications for education and suggest that [1] Students' individual learning (hemispheric processing) styles should be identified, and [2] Subject matter should be introduced through methods that accommodate those styles.

Levy emphasized that brain research thusfar, "is only the initial step"--The research to guide us in understanding the synthesis of the specialized abilities of each hemisphere is yet undone. "Yet knowing the goal, perhaps it will be possible for teachers with sensitivity to find a way long before scientists can supply specific recommendations."

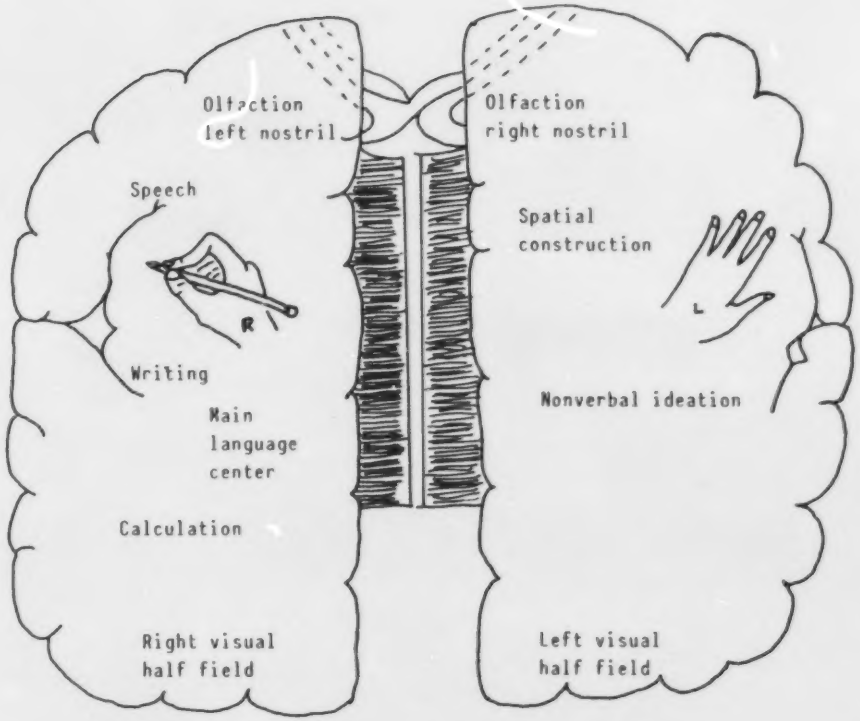
The research also suggests that simple, repetitive, and dull tasks result in low levels of bilateral activation, with reliance on a single hemisphere, and only weak facilitation from the other side; in contrast, complex, differentiated, and interesting tasks result in increased activation of both sides of the brain.

Furthermore, evidence concerning the role played by the right hemisphere in emotion, and, in general, activation and arousal functions, suggests that if a student can be emotionally engaged, aroused and alerted, the specialized abilities of both sides of the brain will participate in the educational process, regardless of subject matter. Similar findings have emerged from psychological studies.

---

[8] Jerry Levy, "Research Synthesis on Right and Left Hemisphere: We Think With Both Sides of the Brain," Educational Leadership (January 1983), p. 71. (Above written and submitted by Dr. Jeanne R. Pizzo.)

Corpus Callosum



Specialized abilities of the left cerebral hemisphere.

Specialized abilities of the right cerebral hemisphere.

The corpus callosum "normally plays a highly important role in facilitating arousal of both hemispheres, in making it possible for both hemispheres to process information and to derive perceptions at the same time."

Illustration from The Brain by Richard M. Restak. Copyright 1979 by Richard M. Restak. Reprinted by permission of Doubleday and Company, Inc.

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Right Brain	Left Brain
INTUITION	INTELLECT
DIVERGENT	CONVERGENT
SENSUOUS	DEDUCTIVE
IMAGINATIVE	RATIONAL
METAPHORIC	VERTICAL
HORIZONTAL	DISCRETE
CONTINUOUS	REALISTIC
CONCRETE	DIRECTED
IMPULSIVE	DIFFERENTIAL
FREE	SEQUENTIAL
EXISTENTIAL	HISTORICAL
MULTIPLE	ANALYTICAL
TIMELESS	EXPLICIT
HOLISTIC	OBJECTIVE
TACIT	SUCCESSIVE
SUBJECTIVE	CRITICAL
SIMULTANEOUS	"NO"
HAS NO REPRESENTATION OF "NO"	

HOLISTIC ANALYTICAL

(SUMMERS)

Right Brain

EMOTIONS
LAUGHTER
3 - DIMENSIONAL
MUSIC/RHYTHM/PITCH
WISHING/HOPING
ABSTRACTIONS
ART
UNDERSTANDING MOOD
ESSENCE
INTUITION
PERCEPTIVENESS
MOVEMENT
PLAYFULNESS
CREATIVITY
SINGING
UNDERSTANDS METAPHOR

Left Brain

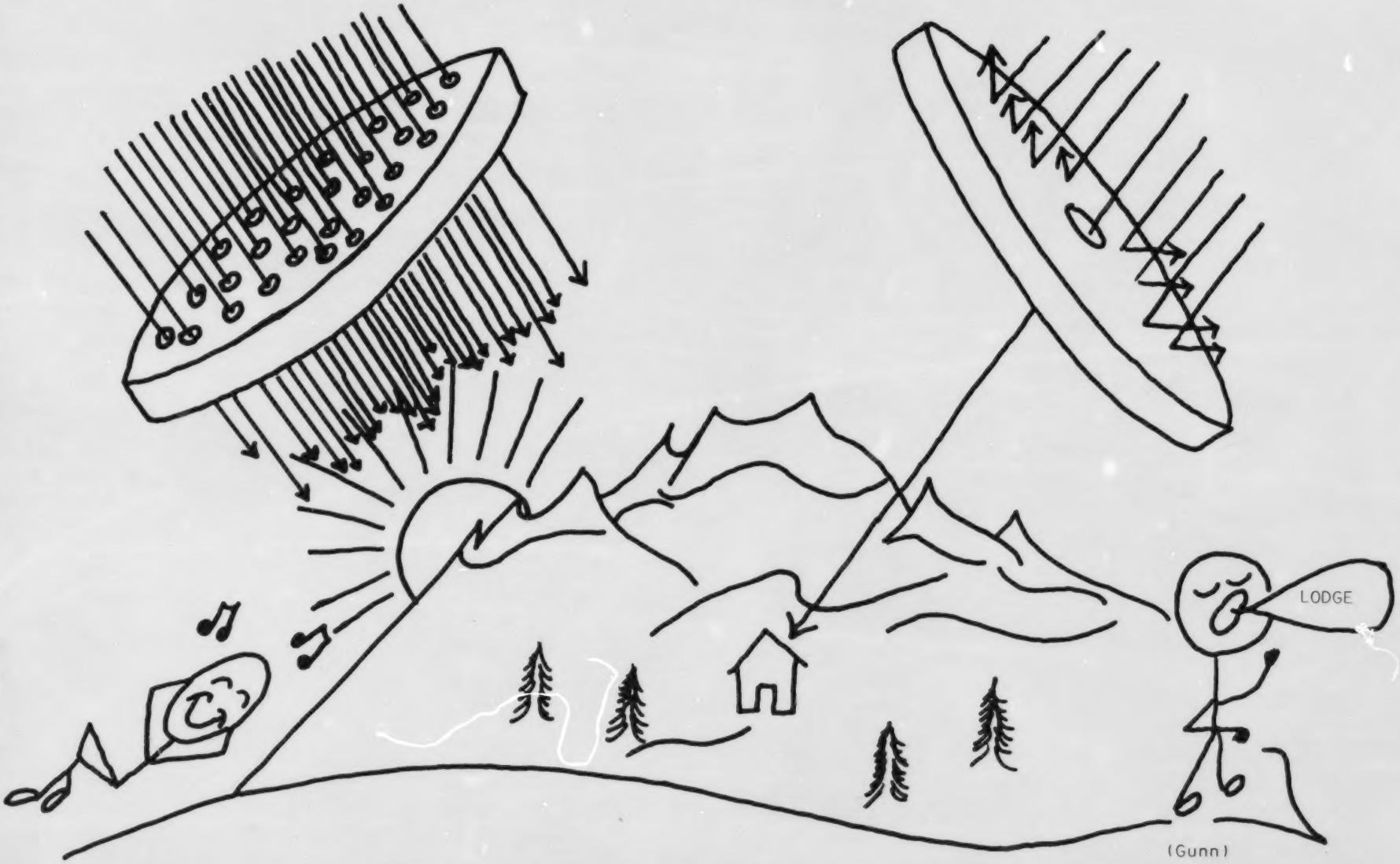
SPEECH
SCIENTIFIC THINKING
ORGANIZE
SYNTHESIZE
RATIONALIZE
CRITICIZE
ORDERS
DETAILS
REMEMBERS

WHOLE CONCEPT

ANALYTICAL

RIGHT HEMISPHERE
(Understands total Experience)

LEFT HEMISPHERE
(Limited surface Structure)



Right Brain Accessing

THE EXPERIENCE:

FATTY ACIDS ARE HIGH

BLOOD SUGAR IS UP

ADRENALINE FLOWS

ACTH:

- EPINEPHRINE (UPPER)
- DOPAMINE (UPPER)
- ENDORPHINS (ANESTHETIC)
- ENKEPHALINS (ANESTHETIC)

BREATHING STIMULATED

THROAT RELAXES...TAKING IN MORE AIR

MORE OXYGEN TO BRAIN AND MUSCLES

LIVER MANUFACTURES MORE GLUCOSE, ADDING FUEL TO TISSUES

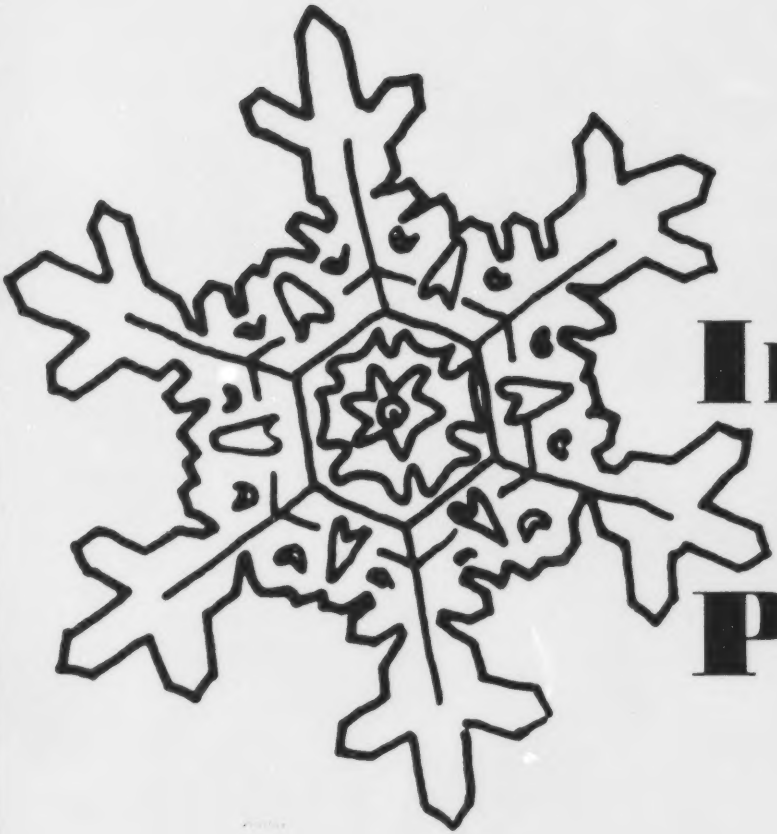
PUPILS DILATE...SHARPENING VISUAL PERCEPTIONS

THE PEAK HUMAN EXPERIENCES OCCUR DURING . . . PLAY!

(SUMMERS)

50

51



Indicators And Predictors

Learning Style Indicator[1]

Directions: Read each pair of statements and mark the box next to the statement that most closely describes you.

1.	☐	☐	I understand things better from someone telling me or reading about them.
2.	☐	☐	I read the written part before I look at the charts and diagrams.
3.	☐	☐	I memorize things by repeating them aloud.
4.	☐	☐	I like rules first, examples later.
5.	☐	☐	I usually get more done when I work with others.
6.	☐	☐	I prefer doing things one at a time.
7.	☐	☐	I usually ask about facts.
8.	☐	☐	I prefer to work slowly.
9.	☐	☐	I answer questions carefully and slowly.
10.	☐	☐	I try to avoid making mistakes.

[1] Diane Lapp and James Flood, Teaching Reading to Every Child (Macmillan Publishing Company, Inc., 1978), p. 146.

What modality is your classroom?

Don't ignore it!

CAPITALIZE ON IT!

Classroom Organization By Modality

The Tactual-Kinesthetic Classroom[2]

The physical organization in this classroom is not evident at all. The teacher's desk is out of the way in a far left corner. Items on the desk are in disarray; the desk is used mainly as readily accessible storage space for clocks, jar lids, beads, scissors and other assorted items. The students' desks are lined up along the left wall with wide aisles between rows. The center of the room is open space.

Beyond the open space is the chalkboard. The chalkboard gives evidence of much use. The open shelf-space contains many items such as blocks, counters, models, diagrams and construction materials. The shelves are organized by activities: art supplies, books, models, student-made materials. Around the room are many examples of student-made art pieces, including macramé, string art and car and airplane models. The bulletin board is near the teacher's desk and contains geometric drawings by the children.

Much instruction takes place in the open space in the center of the room. Acting out a scene or activities occurs frequently. The teacher provides guidance for fine motor tasks. Instructional examples are accompanied by models and gestures. The children are encouraged to write spelling words, either at their desks or on the chalkboard. Unknown words are traced. Each child has crayons that are used frequently.

[2]Walter B. Barbe and Michael N. Milone, Jr., "Modality," Instructor (January 1980). [Used with permission.]

The Visual Classroom[3]

The physical organization in this classroom is immediately clear. The student desks are organized neatly in groups facing the teacher's desk. There are several bulletin boards about the room, each colorfully decorated and displaying material relating to some element of the current lessons. There are three learning centers identified by attention-getting artwork. The math center contains numerous graphs and pictures of math examples.

Numerous posters, signs and pictures are displayed about the room. The letters of the alphabet are in orderly display along the wall opposite the windows.

Much instruction takes place from the teacher's desk. Workbooks, worksheets and pictorial presentations dominate instruction. Reading is frequently done silently, stressing a sight word approach. Configuration and pictures are used as clues for unlocking new words. Math drill is either from worksheets or flash cards. Spelling is practiced through the use of flash cards. Instruction to the children are often in the form of task cards or printed materials. Art activities are common, usually two dimensional with line, color and shape stressed. And slide films and movies are often viewed to provide instruction or as special activity.

[3] Ibid.

The Auditory Classroom[4]

The physical organization of this classroom is not immediately noticeable. Teacher and student desks are grouped together toward the front and center of the room. The chalkboard is at the opposite end of the room from the teacher's desk. There is one bulletin board in the room with a seasonal display on it. Two learning centers and a listening station are along the right side of the classroom.

The listening station has a tape recorder and a record player. There are numerous tapes and records that provide instruction in basic skills, plus some records of sounds and music. Each of the learning centers has a cassette recorder in plain sight. The directions for each center are on cassette tapes.

The instruction in this classroom is mainly in the form of verbal discussion and lecture. Student talk is encouraged, and language lessons are accompanied by much discussion. Reading instruction is built on phonics lessons. There are frequent "spelling bees." The children are encouraged to do verbal math problems and games, and to respond orally to flash cards. There is a constant "buzz" of activity as the students chat back and forth about their lessons and about other activities.

[4]Ibid.

Environmental Factors

"I wish they would all just stay in their chairs!

Will my unstructured students accept straight rows in my classroom?

How can I do role-playing with desks in the way?

How noisy is 'too noisy'?

Why can't they learn on a gloomy day?"

Because we are all individuals (yes, kids are too), we all have our own comfort zone when it comes to learning. Some need complete silence, some need music as a buffer, some get so lost in their work that nothing distracts them. Perhaps you have trouble concentrating when you are cold. Some of your students get sleepy when it is warm. Others can't seem to sit still for five minutes. How can we accommodate all these environmental factors in a classroom?

Physical Elements

The following are physical elements that affect learning styles. When individuals are involved in a learning situation, unconsciously they are responding to stimuli which may or may not enhance learning. These stimuli can be physical in nature and include the following:

A. Noise
B. Temperature
C. Lighting
D. Room Arrangement

A. Noise

Many individuals require different noise levels in order to function and facilitate learning. The spectrum includes complete silence to extreme noisiness. Some individuals require noise (a radio or TV) to enhance concentration. Both types are effective if used in conjunction with an individual's stlye. Noise that enables a visual learner to concentrate, distracts an auditory learner so much that learning is reduced. Also the absolute quiet can distract a visual learner in that the individual hears noises that are not usually heard. Therefore, the quality and quantity of learning can be determined by the matching of preferred noise levels.

B. Temperature

Individuals can readily identify the temperature at which they are most comfortable. When looking into a classroom, temperature preferences are quite obvious. Some children will have short sleeves while a child in the back of the room may have a coat on and indicate he/she is cold. Body temperature can greatly affect school productivity. If a child has cold hands, it will be extremely difficult to write. Also a child who is sitting far from the air cooling and is perspiring from the heat will have little chance to absorb the day's lesson. Each individual adapts him/herself and makes changes (putting on a coat if he/she is cold) when necessary to enable him/herself to feel ready to learn. Allowing options of seating arrangements to permit cold-natured children to sit close to the heat and warm-natured children to sit on the outer perimeters will increase comfort, alertness and learning productivity.

C. Lighting

Individuals respond differently to light. A light which is too bright can cause glare and almost guarantee no learning for some, as they must squint and tilt their head to shade their work. These students are in direct conflict with the stimuli. Other individuals require lights that are dim because they are relaxing and conducive to learning.

Within the classroom, children's behaviors are indicators of preferred lighting. If the light is too bright, children tend to lean over and cover their work. They also squint or appear overactive. If the light is too dim, children may work close to the paper and appear sleepy and uninterested. Location of a child's desk to proper lighting can mean a simple move, such as the addition of lights (lamps), or, if the light is too bright, placement of colored paper on the light directly above the child's desk. Such simple manipulations can increase the opportunity to learn.

D. Room Arrangement

Room arrangement can usually be considered as:

1. Formal
2. Informal
3. A combination of formal/informal

All individuals study in different learning arrangement. Some individuals prefer to study as in a library at a desk with a straight back chair, whereas others require an informal setting consisting of a lounge chair or bed with big fluffy pillows - a relaxing situation.

Children also study differently and the average classroom requires adaptations to facilitate the room arrangement students need. The students who need a formal setting are at an advantage in the average classroom, where students requiring an informal setting view the room arrangement as rigid and uncomfortable, thereby minimizing learning. By allowing a corner of a room to be informal, those students, too, can benefit from study time.

Classroom Design

"To begin redesigning your classroom to provide for varied learning styles, you first must identify each of your student's learning styles. Then, using the checklist below, begin to identify the parts of the room that might lend themselves to each of the following:

* Place where several students may meet to discuss what they are learning
* Well-lit reading areas
* Garment areas
* Desks or tables and chairs
* Sections that permit responsible students to work without direct supervision
* Sections that permit students to work alone, with a friend or two, in a small group, with an adult or in any combination thereof, provided they show academic progress
* Essentially quiet and screened study areas for individuals or pairs
* Darker sections for media viewing, photography or dramatizations
* Cooler areas
* Carpeted and lounge sections
* Sections that permit close supervision of less responsible students
* An area where snacking may be available (preferably raw vegetables and fruits, nuts and other nutritious foods)[5]

"The major objective of changing of furniture in the classroom is to provide different types of areas to permit students to function through patterns that appear to be natural for them and for their learning styles."[6]

Once the room is redesigned, rules should be established for the use of varied instructional areas. Separating the learning environment into multi-instructional areas encourages students to consider where they will find it most appropriate to do their work.[7]

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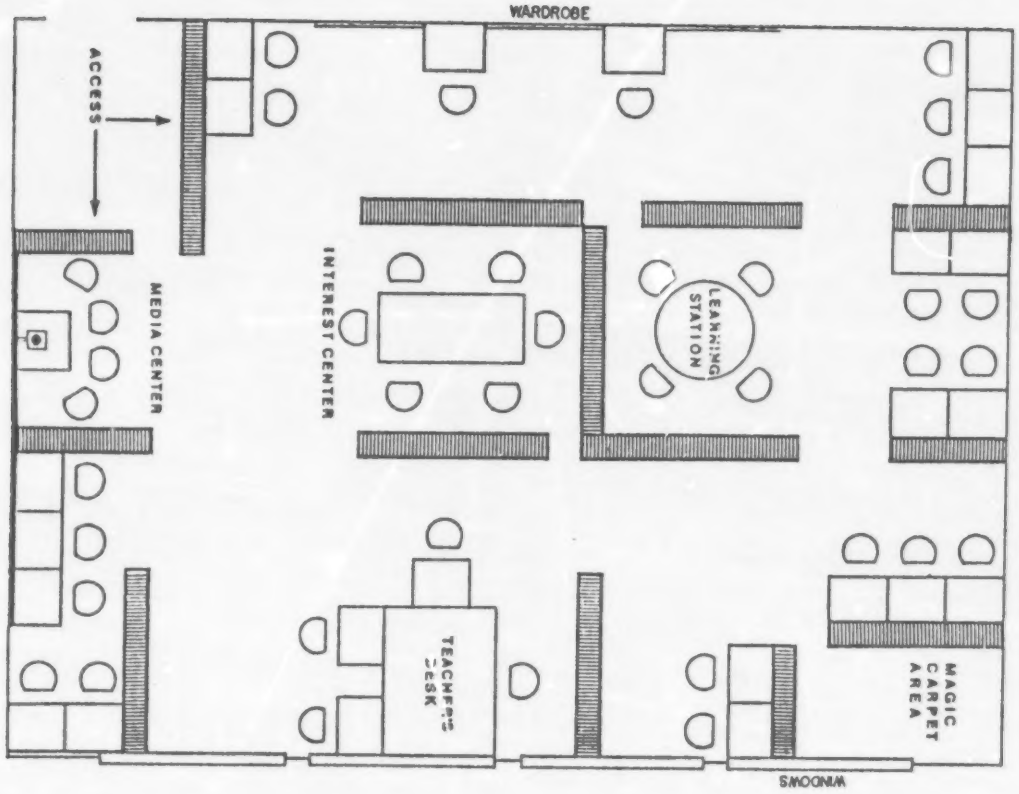
[5] Rita Dunn and Kenneth Dunn, Teaching Students Through Their Individual Learning Style, (Reston, VA: Reston Publishing Company), p. 26. [Used with permission.]

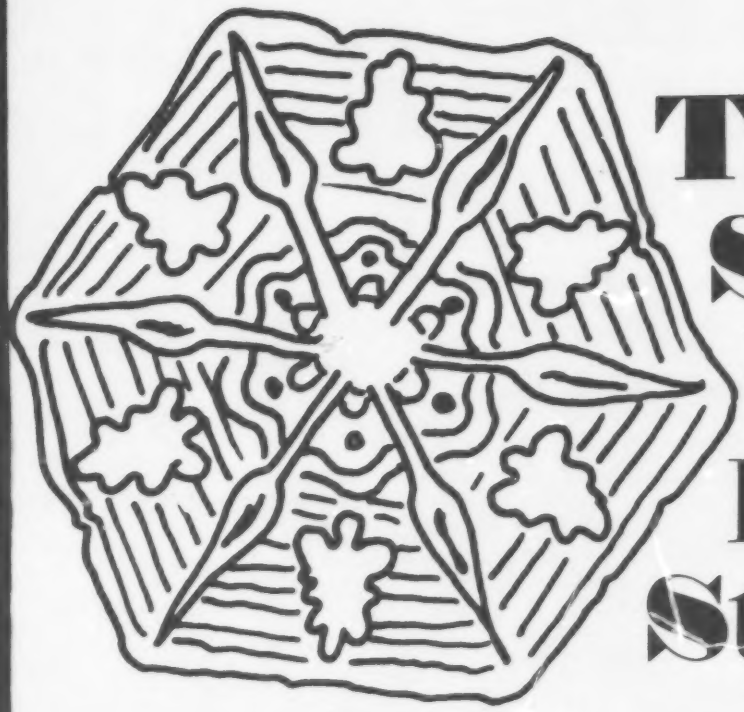
[6] Ibid., p. 29.

[7] Ibid., p. 47.



This depicts a completely redesigned model classroom that provides for different learning styles.[8]

[8] Ibid., p. 43.



Teaching Strategies Using Learning Styles

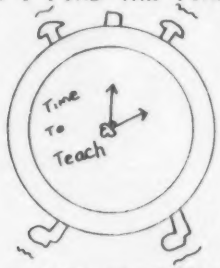
Teaching Strategies

WHAT SHOULD I TEACH THE CHILDREN ABOUT THEIR OWN LEARNING STYLES?

So that all students will realize that their learning styles are different, they should know what learning styles are. In this way they can use their learning patterns for benefit outside of the classroom. In addition, when a student recognizes the way he/she learns naturally, the outcomes are increased academic achievement, improved self-esteem and learner independence.

DO I HAVE TO HAVE A DIFFERENT PLAN FOR EACH LEARNING STYLE?

HOW CAN I FIND THE TIME TO TEACH TO EACH LEARNING STYLE?



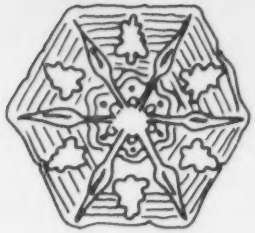
Time is not what you need. You need creativity. You have your own plan, use it in a creative way. For example, if you are teaching a lesson on giving directions, let the auditory student give directions to another auditory learner. Have the visual learner draw a map to be shared with another visual learner. Tell the tactual-kinesthetic learner to lead another tactual-kinesthetic learner through the directions.

WHY DO I HAVE TO CHANGE? THE KIDS HAVE TO COPE OUT IN THE WORLD ANYWAY, WHY NOT START NOW?

You don't have to change. All you have to do is expand your understanding of how students learn and adapt your teaching strategy to how they learn. It will reduce your frustration and teaching will be fun because the students will be motivated to learn. They will not have to compensate by trying to learn as the teacher wants them to learn.

THERE ARE SO MANY DIFFERENT LEARNING STYLES AND JUST AS MANY TEACHING STYLES. WHY MUST I USE THESE DIFFERENT METHODS IN MY TEACHING?

Because each child receives and processes the information you give in different ways. You must reach as many students as possible by teaching in a way which causes this processing to occur. You must also ask questions which will initiate the student's processing ability.



METHODS OR RESOURCES WHICH COMPLEMENT LEARNING STYLES THAT APPEAR NOT TO FLOURISH IN A CONVENTIONAL INSTRUCTIONAL SETTING

Method or Resource	Learning Style Characteristics to Which It Responds	Learning Style Characteristics to Which It Does Not Respond	Learning Style Characteristics To Which It Can be Accomodated
1. Programmed Learning	Motivation, persistence, responsibility, and a need for structure; a need to work alone, a visually-oriented student.	A lack of motivation, persistence or responsibility; a need for flexibility or creativity; a need to work with peers or adults; auditory, tactual or kinesthetic perceptual strengths.	Sound, light, temperature, and design; a need for intake, appropriate time of day, and a need for mobility.
NOTE: When programmed learning sequences are accompanied by tapes, they will appeal to auditory learners; when they include films or filmstrips, they will reinforce the visually-oriented student; when teachers design small-group techniques such as team learning, circle of knowledge or brainstorming, peer-oriented students may develop an ability to use programs more effectively than if they use them exclusively as individual learners.			
2. Contract activity	A need for sound and an informal design; motivation, persistence and responsibility; a need to work either alone, with a friend or two, or with an adult, all perceptual need for mobility.	None	Sound, light, temperature, and design; motivation, persistence, responsibility; sociological needs; perceptual strenths, intake, time of day, and the need for mobility.
NOTE: Contract activity packages respond to all learning style characteristics provided that (1) they are used correctly, and (2) multi-sensory resources are developed as part of them.			
3. Instructional package	A need for sound or structure, a need to work alone; all perceptual strengths.	A lack of responsibility; a need for peer or adult interactions.	Light, temperature, and design; motivation, persistence; intake, time of day, and mobility.
NOTE: Because of their multisensory activities, instructional packages are very effective with slow learners. Unless the curriculum is extremely challenging, they may be boring to high achievers.			
4. Task cards and learning circles.	Motivation, persistence, responsibility, and the need for structure; visual or tactual strengths.	A lack of motivation, persistence, responsibility, or a need for structure; auditory or kinesthetic strengths; a need for mobility.	Sound, light, temperature, and design; the need to work alone, with peers, or an adult; intake and time of day.
5. Tapes, audio cassettes	A need for sound; motivation, persistence, responsibility, and a need for structure; a need to work alone; auditory strengths.	A need for silence; a need to work with peers or an adult; visual, tactual, or kinesthetic strengths, and a need for mobility.	Light, temperature, and design; intake and time of day.

SOURCE: Rita Dunn and Kenneth Dunn. Teaching Students Through Their Individual Learning Styles: A Practical Approach. Reston, Virginia: Reston Publishing Company, division of Prentice-Hall, 1978, p. 23.

TABLE I

Characteristics Of Students Of Different Learning Styles[1]

STUDENT LEARNING STYLE

Need very much structure

Characteristics

Short attention span.

Like to be active; there is constant movement.

A lot of physical and verbal fights.

Do not know how to function in group situations or discussion.

Incapable of thinking through a problem; will guess and let it go at that.

Try the rules often.

Work only because the teacher says and look to peers for approval.

Teaching Approaches

Have definite and consistent rules - let them know what is expected of them.

Give specific guidelines and instructions (step - by - step), even make a chart of the steps.

Make goals and deadlines short and definite (give them the topic, how many lines / pages, how it is to be done and the exact date it is due).

Provide a variety of activities during the period, incorporating some physical movement whenever possible.

Make positive comments about their attempts; give immediate feedback on each step; give much assurance and attention; praise often.

Use pictures and things they can see, feel and touch.

Get them to work immediately and change the pace often.

Display their work; it's a form of reinforcement which they like.

Capitalize on their interests to assist them in learning the various reading skills, i.e., stories or projects dealing with cars with Grade 9 boys.

Begin with factual material before attempting a discussion.

Move gradually from seat work to discussion; provide more group work as they are able to handle it.

Leave them at the end of each period with the satisfaction of having learned new material and having success in what they have been studying - almost a complete lesson each period with a minor carryover to the next period and the mention of something interesting to come.

Read to them; it helps extend their attention span and enhance listening skills.

Give short quizzes and objective tests initially.

Provide opportunities for choice and decision making as they appear ready for them.

[1] David E. Hunt, "Learning Styles and Student Needs: An Introduction to Conceptual Level," Student Learning Styles: Diagnosing and Prescribing Programs, NASSP 1979, pp. 35-38.

TABLE II

Characteristics Of Students Of Different Learning Styles[2]

STUDENT LEARNING STYLE	Teaching Approaches
Need much structure	Arrange students initially in rows and gradually get them working in pairs, then in small groups.
Characteristics	Have definite and consistent rules - let them know what is expected of them.
Oriented to the role of a 'good student,' one who gets the right answers, has neat work and good work habits.	Use creative drama to encourage spontaneity, self-awareness and cooperation.
Seek teacher approval.	Help them to know what to do each day. Some teachers found that initialing the students' work daily provided the teacher contact they desired and the impetus to continue. They could see how much they had accomplished.
Want to work alone at their own desks.	Provide non-threatening situations where they have to risk an opinion.
Incapable of adjusting to a different teacher.	Provide a lot of praise and success-oriented situations.
Upset by visitors or alterations of the schedule.	Give them group problems to encourage sharing.
Do not express personal opinions.	Provide opportunities for choice and decision making as they appear ready for them. Push them gently into situations where they have to make decisions and take responsibility.
Are confused by choices.	
Want to be told and have the teacher constantly present.	

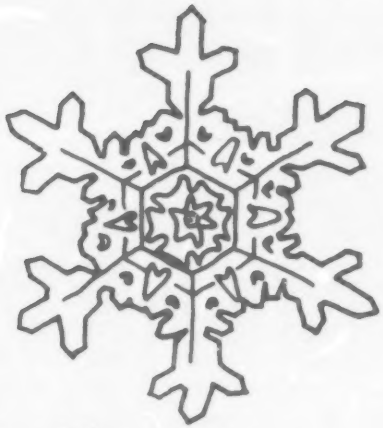
[2] Ibid.

TABLE III

Characteristics Of Students Of Different Learning Styles[3]

STUDENT LEARNING STYLE	Teaching Approaches
Need less structure	
Characteristics	
Like to discuss and argue.	Allow them to select their own seats.
Everybody wants to talk at once and nobody listens.	Give them several topics from which to choose.
Will question and volunteer additional information.	Set weekly (or longer) assignments and allow students to make up their own timetables.
Want to solve things themselves.	Encourage them to use each other as resources.
Go off on sidetracks.	Allow more mobility and give them more opportunities to take part in planning and decision making. If they are given the freedom to pursue things on their own, they will continue on their own w thout question.
Do not require teacher rewards.	
Are imaginative.	
Are not afraid of making mistakes.	
Are enthusiastic and eager to go off on things on their own.	Have them work in groups with the teacher serving as a resource person.
See alternatives.	Approach material at a more abstract or general level. You can start out with a discussion and then go to the facts of the material.
Are adverse to detail and can not tolerate going step-by-step.	Train them to listen to instructions (and to listen in general) as they tend to go off on their own.
May be initially self-centered and less concerned about others.	

[3]Ibid.



Overview To Instrumentation

FIGURE I

Methodology Preference Defined by Trial Lessons

Study	Methodology Preference	Criterion Used	Significant Results
Mills [1955]	A,V,K,C	Mills Learning Methods Test	Yes
Coleman [1962]	A,V,K,C	Mills Learning Methods Test	Yes
Manwarren [1972]	A-V, V-A, LWS, LEA	Ray Reading Methods Test and Reading Achievement	Yes
Young [1975]	A-V, V-A LWS, LEA	Ray Reading Methods Test	Yes
Treadway [1975]	A-V, V-A, LWS, LEA	Ray Reading Methods Test	Yes
Vandever and Neville [1974]	A,V,K	A = letter sound V = meaning and distinctive K = words were textured and Reading Achievement	Yes

A = Auditory Method
V = Visual Method
K = Kinesthetic Method
C = Combination Method

A-V = Auditory-Visual Method
V-A = Visual-Auditory Method
LWS = Linguistic Word Structure Method
LEA = Language Experience Method

FIGURE II

Sensory Modality Preference Matched With Method

Study	Modality Preference	Teaching Methods Used	Significant Results
deHirsh, Jansky & Langford [1966]	A,V,K	Basal program with and without supplemental phonics	No
Harris [1965]	A,K	Language Experience with reinforcement in preference	No
Robinson [1968]	A,V	A = Hay-Wingo Phonics V = Basal reader	No
Bateman [1968]	A,V	A = Sound-symbol Approach V = Basal reader	No
Bruininks [1968]	A,V	Modified Mills Learning Methods Test	No
Freer [1971]	A,V	A = Auditory method V = Basal approach	No
McCarthy [1971]	A,V	Ray Reading Methods Test	No
Ringler, Smith & Cullinan [1971]	A,V,K	Bank Street Reader with small group instruction in preferred method	No
Waugh [1973]	A,V,K	A = Auditory Method V = Visual feedback	No
Bohning [1973]	A,V	A = Auditory feedback V = Visual feedback	No
Miller [1974]	A,V	A = Palo Alto Reading Program V = Bank Street Readers	No
Scott [1973]	A,V,K	American Basic Reading Program with 20 minutes of instruction in preferred method	No

A = Auditory Preference V = Visual Preference K = Kinesthetic Preference

Kindergarten Screening Test

Dorothy Young

The inventory is:

> a test given to determine the pre-reading abilities of kindergarten children. The test was designed as part of the results of an extensive study that was conducted in two stages. The first portion of the study was the administration of tests for the identification of modality preference. The second stage was a teaching/learning experience whereas four different methods of reading were presented to each pupil in kindergarten.

Applications or Implications:

> Both individual and group evaluative subtests included. The instrument was constructed under the assumption that results from the screening could be easily utilized by the classroom teacher in providing differentiated reading instruction.

Teacher Assessment of Student Learning Styles Paragraph Completion Method (PCM)

David E. Hunt

Learning style describes students in terms of those educational conditions under which they are most likely to learn and essentially describes the amount of structure individuals require.

Teacher Assessment of Student Learning Styles is:

> observations based on student reactions to systematic teacher/introduced changes in structure.

Paragraph Completion Method (PCM) is:

> a semi-projective method which assesses conceptual level. Students write responses to a posed topic. For use with grade 6 to adult levels. Approximate administration time: 20 minutes.

Application or Implications:

> Matching educational approaches to student learning style facilitates academic achievement.
>
> Conceptual level, in terms of learning style, is a developmental phenomenon which ranges from the "unsocialized" to the "independent." Knowledge of learning style can influence and enhance the development of conceptual level.[1]

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[1] Dunn, DeBello, Brennan, Krimsky, Murrain, "Learning Style Researchers Define Differences Differently," Educational Leadership, February 1981, p. 374. [Reprinted with permission of the Association for Supervision and Curriculum Development. All rights reserved.]

Description of Learning Style Inventories

Learning Style Inventory	The inventory is:	Applications or Implications:
Canfield and Lafferty Individual learning style is derived from: * academic conditions (relations with instructor and peers) * structural conditions (organization and detail) * achievement conditions (goal setting, competition) * content (numbers, words, etc.) * mode of preferred learning (listening, reading, iconic and direct experience) * expectation of performance level (superior through satisfactory)	a self-report instrument based on a rank ordering of choices for each of 30 questions. For use with junior high through adult levels. Approximate administration time: 15 minutes.	Major use is to develop instructional materials for whole class or individual students. The test is viewed as a tool to aid in understanding students' difficulties in completing academic units for counseling. Emphasis on attitudinal and affective dimensions in the inventory strengthens such application.[2]

[2] Ibid., p. 374.

Gregorc Style Delineator

Anthony F. Gregorc

Learning style consists of distinctive, observable behaviors that provide clues to the functioning of people's minds and how they relate to the world. Those "mind" qualities suggest that people learn in combinations of dualities:

concrete-sequential
concrete-random
abstract-sequential
abstract-random

Preferences for a particular set constitutes a learning style.

The inventory is:

a self-report instrument based on a rank ordering of four words to each of 10 sets. For use with upper junior high/adult levels. Approximate administration time: 5 minutes.

Applications or Implications:

Strong emphasis is placed on the matching of instructional materials and methods to meet the range of individual preferences. Gregorc also recommends that selected nonpreferences be utilized at times to encourage students to strengthen those areas.[3]

Myers-Briggs Type Indicator

Isabel Briggs Myers and
Katharine C. Briggs

The Inventory was developed:

to facilitate theory of psychological types, which says that variations in behavior which may seem random are actually consistent and orderly when one understands differences in the ways people prefer to take in information and make decisions.

Applications or Implications:

Four preferences are scored: EI (Extraversion and Introversion), SN (Sensing and Intuition, the two kinds of perception), TF (Thinking and Feeling, the two kinds of judgment) and JP (the Judging or Perceptive attitude for dealing with the environment). The four scores combine to generate sixteen types, each with its own characteristics and gifts, its own road to excellence and its own pitfalls to be avoided. Isabel Myers wrote a description for each type, in non-technical language, which is based on theory and empirical research; descriptions focus on the strengths of each type and mention possible probelms before full development is reached.[4]

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[3] Ibid., p. 375.

[4] CAPT-MBTI, Center for Application of Psychological Type, N.D. [Reprinted with permission]

Learning Style Inventory

David Kolb

Learning style is a result of hereditary equipment, past experience and the demands of the present environment combining to produce individual orientations that give differential emphasis to the four basic learning modes postulated in experiential learning theory:

Concrete Experience (CE)

Reflective Observation (RO)

Abstract Conceptualization (AC)

Active Exerpimentation (AE)

The inventory is:

a self-report instrument based on a rank ordering of four possible words in each of nine different sets. Each word represents 1 of the 4 learning modes: feeling (CE) watching (RO); thinking (AC); doing (AE). For use with young adults. Approximate administration time: 5-10 minutes.

Applications or Implications:

Emphasis is placed on individual awareness of personal learning style and available alternative modes. Knowledge of learning style differences should encourage the design of instructional experiences to enhance individual strengths and develop non-dominate orientation.[5]

Cognitive Style Interest Inventory

Joseph E. Hill

Cognitive style is the unique way in which an individual searches for meaning. It is reflected in the way:

* qualitative and theoretical symbols are handled
* cultural influences affect the meaning given to symbols
* meaning is derived from symbols that are preceived

The inventory is:

a self-report instrument based on a rank ordering which measures abstractions, visual, tactile and auditory perceptions, motor coordination and social interaction. For use with elementary/adult levels. Approximate administration time: 50 minutes.

Applications or Implications:

Cognitive Style Mapping identifies students strengths and weaknesses through major, minor and negligible categories. It serves as a basis for developing a personalized educational program which utilizes varied instructional modes to match students and the educational task.[6]

[5] op. cit., "Leaaning Style Researchers Define Differences Differently," p. 375.

[6] Ibid.

Inventory of Learning Processes

Ronald R. Schmeck

Learning style is the product of the organization of a group of information processing activities that individuals prefer to engage in when confronted with a learning task. Those activities range from [a] deep and elaborative to [b] shallow, repetitive and reiterative.

The inventory is:

a 62-item, true/false, self-report inventory grouped via factor analysis into synthesis / analysis, study methods, fact retention, and elaborative processing. Approximate administration time: 20 minutes.

Applications or Implications:

Students should be encouraged to develop a learning style which is thoughtful, deep and elaborative.

Through the use of specific instructional strategies, teachers should discourage shallow reiterative information processing.

Eysenck Personality Questionnaire

H. J. Eysenck

The inventory is:

Personality questionnaire: designed to measure constructs of introversion and extraversion. Inventory stresses the inherited differences between people in the ways their nervous system functions.[7]

[7] Ibid.

Learning Style Inventory (LSI)

Dunn, Dunn, Price

Learners are affected by their preferences:

* environmental

  (sound, light, temperature and the need for either a formal or informal design)

* emotional

  (motivation, persistence, responsibility and the need for either structure or options)

* physical

  (perceptual strengths, need for intake, time of day or night energy levels, and need for mobility)

The inventory is:

a self-report instrument based on a rank ordering of choices for each of 104 items. For use with grades 3-12. Approximate administration time: 30 minutes.

Applications or Implications:

The LSI is designed to diagnose individual learning characterisitcs. Accompanying manuals suggest prescriptions to complement selected styles to facilitate academic achievement.

Sixteen Personality Factor Questionnaire

Raymond Cattell

The inventory is:

Personality questionnaire used to measure the constructs of introversion and extraversion. Ideal to be used as a self-report inventory.

Reading Style Inventory

Marie Carbo

The inventory is:

Diagnostic reading tests designed for grades 1-12. The battery can be administered to one student at a time or to the entire class in about 30 minutes.

Applications or Implications:

After administering the RSI individual reading style, profiles can be ordered. The profile contains a description of the student's style preference, strengths and weaknesses; specific teaching strategies plus reference pages in the RSI Manual.[8]

[8] Ibid., p. 374.

Learning Style Inventory: Class Set

Renzulli and Smith

The inventory includes:

30 student forms, 1 teacher form and computer scoring. The instrument itself consists of 65 items designed to measure student attitude toward nine modes of instruction, including projects, independent study, lecture and discussion. All forms are prepared on optical scanning sheets and require approximately 30 minutes to complete. Designed for Upper Elementary/Junior High.

Applications or Implications:

Computer scoring results in a variety of easy-to-interpret reports including listings of students' most and least preferred styles and groupings of students by learning style preference.[9]

Child Rating Form

Ramirez and Castaneda

Cognitive style differences (field independent/field sensitive) and cultural indifferences create individual learning styles. Because learning style is not permanently fixed, it is possible to intervene and affect it.

The inventory has:

direct observation checklist format, yielding frequency of behavior scales, is completed by the teacher; it is suggested that older students can rate themselves. Approximate administration time:

Applications or Implications:

Identification of cognitive style is used both to match and mismatch learning and teaching styles. The goal is to encourage personal "bicognitive ability" that reduces favoring one style over another continually.[10]

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[9] Reprinted from a brochure by The Creative Learning Press, Inc., 1983-84.

[10] op. cit., "Learning Style Researchers Define Differences Differently," p. 375.

Trial Lessons

Trial Lessons

Background

In 1955, Mills developed the Mills Learning Methods Test, which was a trial lesson designed to assist the teacher in determining the learning method best suited for the individual child. He proposed to determine the teaching method or combination of methods most effective in teaching word recognition to various types of individuals. Results from the study showed that no one method was best for all children. In beginning reading, children with lower capabilities responded least well to the phonic method while the tactual-kinesthetic method was found to be the best method for these students. Children of average ability showed an equal preference for the auditory or visual method, while the tactual-kinesthetic method was the least effective. The children of high ability learned readily regardless of method. Mills recommended that a diagnostic study of students was needed to determine the most appropriate method to be used.

The Ray Reading Methods Test (RRMT) was developed in 1970. This test was developed to provide information related to a child's preferred method of reading. Mill's test was designed for children seven, eight or nine; however, the Ray Reading Methods Test was designed to be appropriate for children ages four, five and six. The test could be administered in groups up to five members. Results from studies relative to Methodology preferences defined by trial lessons are summarized by Ray on page 44.

Ray Reading Methods Test (RRMT)

Darrel D. Ray

The test was developed to provide the teacher and/or clinician with a technique of evaluating the preferred learning method(s) of children in the process of beginning to read.

Ray concluded from an evaluation of methods currently available to the teacher that there appears to be four methods of reading instruction in use. These methods are identified as the:

Visual - Auditory Method in which the initial stage of learning the configuration of a total word is used for instruction with pictures and verbal context clues providing the vehicle of instruction.

Auditory-Visual Method of reading instruction that has the letter as the basic unit of instruction. The learner must accumulate a number of sound-symbol associations and use these in synthesizing and decoding words.

Linguistic Word Structure Method of reading instruction that has the word pattern as the basic unit of instruction where letter names are taught and spelling patterns are accumulated. A learner generalized application is restricted to words having consistent spelling patterns.

Linguistic - Language Experience Method of reading instruction that utilizes the meaningful structure of the learners' own language to provide the basic unit of instruction. The oral communication patterns of the learner are recorded as stories to be visually recognized.

The RRMT was designed to evaluate the performance of children by measuring the response to teaching / learning experiences utilizing each of the four methods. If a child's raw score on the seventy-two hour test of recall is seven or more out of a possible ten, the prognosis has been completed since a score of seven or more indicates the child is predicted to be successful in this method.

Each of the four methods employs identical time allotments and instructional sequence, while the ten words to be taught and the specific teaching materials and procedures vary with the individual methods.

The Ray Reading Methods Test was designed to be appropriate for children ages four, five and six and can be administered in groups of up to five members.

Each child is asked to respond to four delayed recall scores, one for each method. If all methods are equally effective in teaching the child, then all the scores will be the same.

Predictive Batteries

Predictive Batteries Related To Learning Styles

Predictive batteries are a group of selected educational tests, usually standarized on the same population, which yield separate scores for different aspects of achievement. It is a test of knowledge of, or proficiency in something learned or taught, especially, a test of the effects of specific instruction or training.

Marie Carbo's Reading Style Inventory, based on the Dunn and Dunn model, was developed to diagnose the learning styles of youngsters specifically for reading. The test was used to investigate the learning styles of students as related to 18 elements of reading style.

The inventory diagnoses individual reading styles and lists methods, materials and strategies that are recommended for individual students based upon computer analysis of the data received from the students in grades 1-12.

After administering the RSI, individual reading style profiles can be ordered. The profile contains a description of the student's style preference, strengths and weaknesses, specific teaching strategies plus reference pages in the RSI Manual.

The Kindergarten Screening Test is a test given to determine the pre-reading abilities of kindergarten children. The test was designed as a part of the results of an extensive study that was conducted in two stages (Young & Treadway, 1975). The first portion of the study was the administration of tests for the identification of modality preference. The second stage was a teaching-learning experience whereas four different methods of reading were presented to each pupil in kindergarten (Ray Reading Methods Test, 1970).

The test consists of both individual and group evaluative subtests. The instrument was constructed under the assumption that results from the screening could be easily utilized by the classroom teacher in providing differentiated reading instruction at the first grade level.

Self-Reporting Inventories

THE LEARNING STYLE INVENTORY

Dunn, Dunn, Price

The Learning Style Inventory, based on factor analysis, is a comprehensive approach to the diagnosis of an individual's learning style. This instrument, a useful tool in analyzing the conditions under which students prefer to learn, assesses individual preferences in the following areas:

(a) environmental
[sound, light, temperature and design]

(b) emotional
[motivation, responsibility, persistence and structure]

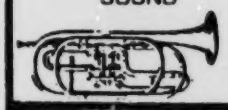
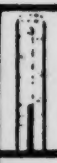
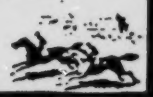
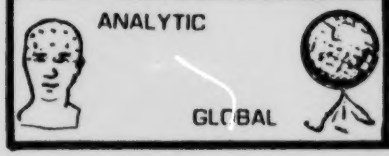
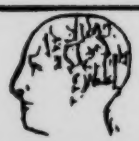
(c) sociological needs
[self, pair or peer oriented; adult, team or combined ways]

(d) physical needs
[perceptual preference(s), time of day, intake and mobility]

(e) psychological
[analytic or global, hemisphere preference, impulsive or reflective]

The learning style inventory will permit students to identify how they prefer to learn and will also indicate the degree to which their responses are consistent. It will provide a computerized summary of each student's preferred learning style, as well as suggest strategies for instruction.

DIAGNOSING LEARNING STYLES

STIMULI	ELEMENTS			
ENVIRONMENTAL	SOUND 	LIGHT	TEMPERATURE 	DESIGN
EMOTIONAL	MOTIVATION 	PERSISTENCE	RESPONSIBILITY	STRUCTURE M T W TH F
SOCIOLOGICAL	PEERS	SELF	PAIR	TEAM	ADULT	VARIED
PHYSICAL	PERCEPTUAL	INTAKE	TIME	MOBILITY
PSYCHOLOGICAL	ANALYTIC GLOBAL 	HEMISPHERIC PREFERENCE 	IMPULSIVE REFLECTIVE

DESIGNED BY: RITA DUNN
KENNETH DUNN

Informal Checklist

TIME TEST

Name_____ Date_____

Directions: Answer TRUE or FALSE to each of the following questions.	TRUE	FALSE
1. I usually hate to get up in the morning.	____	____
2. I usually hate to go to sleep at night.	____	____
3. I wish I could sleep all morning	____	____
4. I stay awake for a long time after I get into bed.	____	____
5. I feel wide awake only after 10:00 in the morning.	____	____
6. If I stay up very late at night, I get too sleepy to remember anything.	____	____
7. I usually feel a "low" after lunch.	____	____
8. When I have to do a task requiring concentration, I like to get up early in the morning to do it.	____	____
9. When I can, I do my most concentration-requiring tasks in the afternoon.	____	____
10. I usually start the tasks that require the most concentration after dinner.	____	____
11. I could stay up all night.	____	____
12. I wish I didn't have to go to work before noon.		
13. I wish I could stay home during the day and go to work at night.	____	____
14. I like going to work in the morning.	____	____
15. I can remember things best when I concentrate on them:		
a. in the morning	____	____
b. at lunchtime	____	____
c. in the afternoon — Answer all the questions a - f	____	____
d. before dinner	____	____
e. after dinner	____	____
f. late at night	____	____

EARLY MORNING		LATE MORNING		AFTERNOON		EVENING	
True	False	True	False	True	False	True	False
____	____	____	____	____	____	____	____
3	7	3	7	6	5	6	5
+		+		+		+	
____		____		____		____	
10		10		11		11	

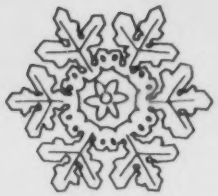
DESIGNED BY: Dr. Rita Dunn and Dr. Kenneth Dunn.

TIME SCORE SHEET

AFTERNOON		EVENING		EARLY MORNING		LATE MORNING	
True	False	True	False	True	False	True	False
3	7	2	6	8	1	5	3
5	8	4	8	14	3	12	8
9	11	5	14	15a	5	15b	9
12	13	10			10		10
15c	13	11			11		11
15d	14	13			12		13
		15e			13		14
		15f					
____	____	____	____	____	____	____	____
6	5	8	3	3	7	3	7
+		+		+		+	
10		11		10		10	

	EARLY MORNING	LATE MORNING	AFTERNOON	EVENING
11				
10				
9				
8				
7				
6				
5				
4				
3				
2				
1				
0				

Designed by: Dr. Rita Dunn and Dr. Kenneth Dunn.



SWASSING-BARBE CHECKLIST OF OBSERVABLE MODALITY STRENGTH CHARACTERISTICS

Area Observed	Visual	Auditory	Tactual-Kinesthetic
Learning Style	☐ Learns by seeing; watching demonstrations	☐ Learns through verbal instructions from others or self	☐ Learns by doing; direct involvement
Reading	☐ Likes description; sometimes stops reading to stare into space and imagine scene; intense concentration	☐ Enjoys dialogue, plays; avoids lengthy description; unaware of illustrations; moves lips or	☐ Prefers stories where action occurs early; fidgets when reading, handles books; not an avid reader
Spelling	☐ Recognizes words by sight; relies on configuration of words	☐ Uses a phonics approach; has auditory word attack skills	☐ Often is a poor speller; writes words to determine if they "feel" right
Handwriting	☐ Tends to be good, particularly when young; spacing and size are good; appearance is important	☐ Has more difficulty learning in initial stages; tends to write lightly; says strokes when writing	☐ Good initially, deteriorates when space becomes smaller; pushes harder on writing instrument
Memory	☐ Remembers faces, forgets names; writes things down, takes notes	☐ Remembers names, forgets faces; remembers by auditory repetition	☐ Remembers best what was done, not was seen or talked about
Imagery	☐ Vivid imagination; thinks in pictures, visualizes in detail	☐ Subvocalizes, thinks in sounds, details less important	☐ Imagery not important; images that do not occur are accompanied by movement
Distractibility	☐ Generally unaware of sounds; distracted by visual disorder or movement	☐ Easily distracted by sounds	☐ Not attentive to visual, auditory presentation so seems distractible
Problem Solving	☐ Deliberate; plans in advance, organizes thoughts by writing them; lists problems	☐ Talks problems out, tries solutions verbally, subvocally; talks self through problem	☐ Attacks problems physically; impulsive; often selects solution involving greatest activity
Response to Periods of Inactivity	☐ Stares; doodles, finds something to watch	☐ Hums; talks to self or to others	☐ Fidgets; finds reasons to move; holds up hand

Response to	☐ Looks around; examines structure	☐ Talks about situation, pros and cons, what to do	☐ Tries things out; touches, feels, manipulates
Emotionality	☐ Somewhat repressed; stares when angry; cries easily, beams when happy; facial expression is a good index of emotion	☐ Shouts with joy or anger; blows up verbally but soon calms down; expresses emotion verbally and through changes in tone, volume, pitch of voice	☐ Jumps for joy; hugs, tugs, and pulls when happy; stamps, jumps, and pounds when angry, stomps off; general body tone is a index of emotion
Communication	☐ Quiet; does not talk at length; becomes impatient when extensive listening is required; may use words clumsily; describes without embellishment; uses words such as see, look, etc.	☐ Enjoys listening but cannot wait to talk; descriptions are long but repetitive; likes hearing self and others talk; uses words such as listen, hear, etc.	☐ Gestures when speaking; does not listen well; stands close; when speaking or listening; quickly loses interest in detailed verbal discourse; uses words such as get, take, etc.
General Appearance	☐ Neat, meticulous, likes order, may choose not to vary appearance	☐ Matching clothes not so important, can explain choices of clothes	☐ Neat, but soon becomes wrinkled through activity
Response to the Arts	☐ Not particularly responsive to music; prefers the visual arts; tends not to voice appreciation of art of any kind, but can be deeply affected by visual displays; focuses on details and components rather than the work as a whole	☐ Favors music; finds less appeal in visual art, but is readily able to discuss it; misses significant detail, but appreciates the work as a whole; is able to develop verbal association for all art forms; spends more time talking about pieces than looking at them	☐ Responds to music by physical movement; prefers sculpture; touches statues and paintings; at exhbits stops only at those in which he/she can become physically involved, comments very little on any art form

SOURCE: Teaching Through Modality Strengths: Concepts and Practices. Copyright 1979, Zaner-Bloser, Inc., Columbus, Ohio. Reprinted by permission.

FIND YOUR MODALITY STRENGTHS

Listed below are ten incomplete sentences and three ways of completing each sentence. Check the statement that is most typical of you. Then count the number of checks in each column. This will give you a rough idea of the relative strength of each of your modalities.

1. My emotions can often be interpreted from my:	( ) Facial expressions	( ) Voice quality	( ) General body tone
2. I keep up with current events by:	( ) Reading the newspaper thoroughly when I have time	( ) Listening to the radio or watching the television news	( ) Quickly reading the paper or spending a few minutes watching television news
3. If I have business to conduct with another person, I prefer:	( ) Face-to-face meetings or writing letters	( ) The telephone, since it saves time	( ) Conversing while walking, jogging, or doing something physical
4. When I'm angry, I usually:	( ) Clam up and give others the "silent treatment"	( ) Am quick to let others know why I'm angry	( ) Clench my fists, grasp something tightly, or storm off
5. When driving I:	( ) Frequently check the rear view mirrors and watch the road carefully	( ) Turn on the radio as soon as I enter the car	( ) Can't get comfortable in the seat and continually shift position
6. I consider myself:	( ) a neat dresser	( ) a sensible dresser	( ) a comfortable dresser
7. At a meeting I:	( ) come prepared with notes and displays	( ) enjoy discussing issues and hearing other points ov view	( ) would rather be somewhere else and so spend my time doodling
8. In my spare time I would rather:	( ) watch television, go to a movie, attend the theatre, or read	( ) listen to the radio or records, attend a concert or play an instrument	( ) engage in a physical activity of some kind
9. The best approach to discipline is to:	( ) isolate the child by separating him or her from the group	( ) reason with the child and discuss the situation	( ) use acceptable forms of corporal punishment
10. The most effective way of rewarding students is:	( ) positive comments written on their papers, stick-ons or posting good work for others to see	( ) oral praise to the student and to the rest of the class	( ) a pat on the back, a hug, or some other appropriate physical action
TOTAL NUMBER OF BOXES CHECKED	___ visual	___ auditory	___ tactual-kinesthetic

SOURCE: "Modality," Instructor (January 1980). Used with permission from Zaner-Bloser, Inc., Columbus, Ohio. Copyright 1980.

LEARNING STYLE CHECKLIST

Environment

_____ minimal distractions

_____ rich in stimuli

_____ "busy" environment

_____ formal organization

_____ informal organization

Thinking/Problem Solving Strategies

_____ likes step-by-step learning

_____ uses concrete experiences

_____ careful attention to detail

_____ leaps to broad generalizations

_____ overviews task first, then proceeds

_____ approaches problem from beginning to end (problem → solution → implementation → evaluation)

_____ uses abstract categories or examples

_____ focus on the main ideas

_____ needs someone else to set up structure

_____ wants to set up personal structure

Classroom Orientation

_____ prefers direct, practical orientation

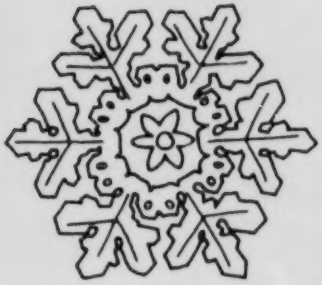
_____ prefers personal and group orientation

_____ prefers theoretical, analytical orientation

_____ prefers application orientation

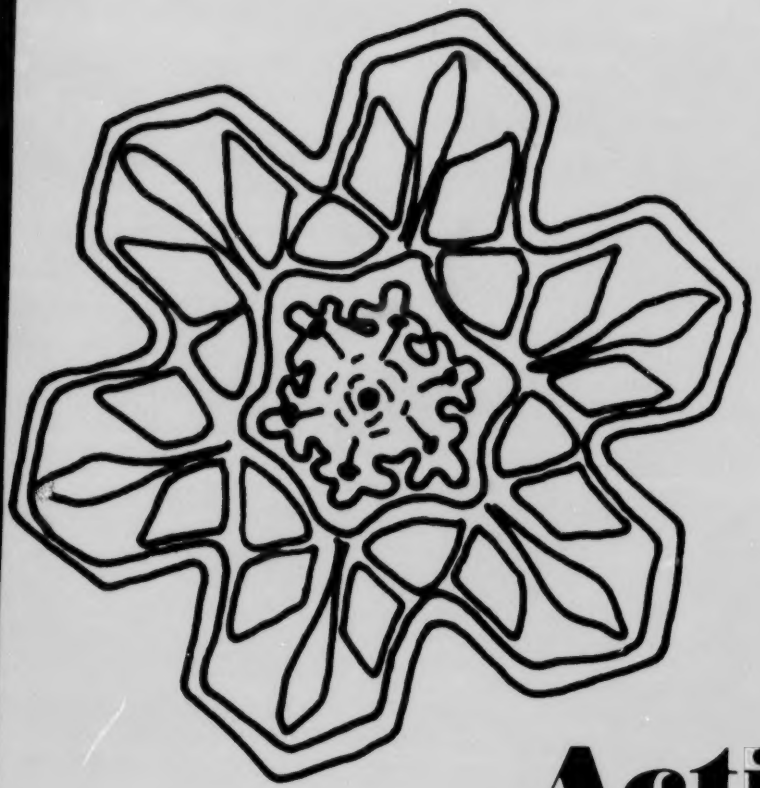
_____ prefers varied approaches

C. A. Kass, Oklahoma City University, 1982. [Used with permission.]

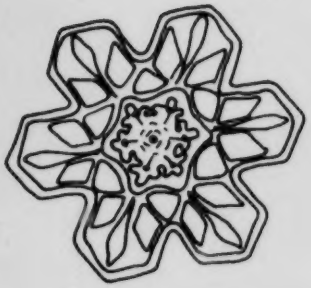


Learning is a process of such infinite complexity that it can be observed and studied from a great many angles. The topic presents us with a problem which is beyond our powers to comprehend. We therefore have to content ourselves with aspects that are of particular interest to us and with rules of thumb which emerge from the study of these aspects.

- Dr. Anthony F. Gregorc



Activities



Key To Learning Styles

K = Kinesthetic

T = Tactual

V = Visual

A = Auditory

K, T, V, A

Activities

TITLE: Creative Drama

GRADE LEVEL: 7-8

CURRICULUM AREA(S): Drama, Language Arts, Speech

1. Puppetry. Ask students to create hand puppets of favorite television characters from such materials as old socks, paper bags, or papier maché. They can act out original dramas, perhaps on a stage made from a large cardboard box. They may want to write a them song for the program or develop recorded music and sound effects to go with it.

2. Body language. Discuss how we convey moods and feelings simply by the way we hold our bodies, distance ourselves from others, use facial expressions and gestures. Select several television characters, e.g., Matt Houston, Alice, Remington Steele. Ask several students or the class as a whole to assume the posture of the characters, one at a time. Students should study each other to compare their postures and walks. Then, students might assume the body language of another character and again compare their portrayals. What does body language indicate about an individual? What are other nonverbal clues that tell about a person?

3. Role playing. Assign viewing of a particular show. Randomly assign students to each of the key parts. As students watch the program, they should consider the conflict and resolution from their character's viewpoint. In class, try the following role playing activities.

   a. Group interview. Have one class member role play a character as the class asks why that character acted as he|she did in the situation. Encourage a wide range of questions.
   b. New endings. Again, using the key characters, break the students into small groups to role play and create a different ending for the television program assigned.

SOURCE: Brochure from CBS, "Take A Lesson From T.V." Copyright 1980 by Prime Time School Television.

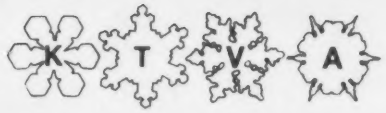
TITLE: Important Persons or Events in History

GRADE LEVEL: 7-12

CURRICULUM AREA(S): The Arts, Creative Writing, Social Studies, Literature

This activity is designed to aid the student in the development of the following skills: understanding of a particular historical personage or event; working with a group; creative writing, improving communication skills, both verbal and written.

Divide the class into groups of four or five students. Have each group select an historical person or event. A teacher-list of appropriate ones could be made available, but students should make their own selections from a biography, novel, historical novel or non-fiction book about this person or event. Working together, students design and construct a board game based upon a specific time period or an event in a person's life. It should incorporate at least ten important facts, sequenced appropriately, or other teacher-developed criteria. Students will package it as if for sale, writing instructions, making or selecting other materials to be included, e.g., dice, pieces to be moved, etc. When complete, each group will make an oral sales presentation to the rest of the class and then teach another of the small groups to play it.



TITLE: Collage

GRADE LEVEL: 7-12

CURRICULUM AREA(S): All

After studying a vocabulary list, ask the students to make a collage of pictures relating to the list. Provide old magazines and pamphlets. Encourage students to use words on collages in class discussion and written communications.

SOURCE: A Wide Spectrum of Ideas - Activities For Teaching Effective Writing, Listening and Speaking Skills, OK: State Department of Education, 1981.

TITLE: Career Unit

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Career Education, Vocational

Mini-Tests - Have students take mini-tests indicating verbal, reasoning, number and space ability, etc. to examine his/her interests through a series of questions. Have an understanding with each student that the tests ar not conclusive, but are given only to make each aware of what types of jobs stress certain abilities.

DOT, Occupational Outlook Handbook and Other Guidance Materials - Students learn how to use guidance materials.

Occupational Choices - Have each student choose an occupation in which he/she is interested.

Occupational Report - Each student prepares a report (using correct form) on a chosen occupation, using the following outline.

- Cover Page
- Table of Contents
- Introduction
- Duties
- Working Conditions
- Earnings and Promotions
- Places of Employment
- Education and/or Training (including related high school subjects)
- Employment Outlook
- Qualifications Profile for Occupation and Student Profile from Mini-tests
- Conclusion
- Bibliography
- Appendix (bonus credit given to students who included a summary of interviews with local persons in this type of occupation).

Employment Communications - Have students write the following:

- Letter of Application for Employment
- Job Resumé
- Letter Requesting References
- Letter Thanking Person for Reference
- Letter Thanking for Interview

Display several examples. Instruct the students to prepare the rough drafts; correct them for form and content. Students must rewrite them making corrections.

Application Forms - Students learn how to fill in application forms properly. Secure forms from several companies including Civil Service.

Body and Oral Communications - Include facial expressions, walking, standing, sitting, arising, voice control and pronunciation, determining proper height of desks, chairs, etc.

SOURCE: Pat Dodge, Business Teacher, Ardmore High School, Ardmore, Oklahoma.

Manners - Include a wide range of acceptable behavior, from how to make introductions to table manners, with special emphasis on student interest.

How to Study and Take Tests -

Sources of Employment Information -

Preparing for an Interview - Areas to cover are:

1. Take resumé
2. Know yourself
3. Know about company
4. Gather information about interviewer
5. Arriving and waiting
6. Dress
7. Your attitude

Proper Conduct and Attitude During Interview

How to Answer Questions and Ask Questions During Interview -

Students are given a list of frequently asked questions. Discuss how to answer them.

Mock Interviews - Conduct a mock interview with student. Students must apply for jobs that they would be qualified to fill (entry qualifications) and must give truthful information about their training, education, etc. These interviews are videotaped and played back. The students will discover how they need to improve simply by watching and listening to the replays.

Employer-Employee Relationships - Legal materials and the results of a school survey of local businesses are to be used for this unit.

Career Day - Organize and conduct a Career Day to enhance this unit. Each department should have local persons to speak about careers. Utilize persons from various occupational areas. Throughout the year, solicit persons to come into the classroom and discuss careers.

Resources. Use numerous resource materials. These materials must be reviewed, incorporated and updated each year.

TITLE: Parts of Speech

GRADE LEVEL: 9-12

CURRICULUM AREA(S): Language Arts

Have each student make his own Bingo card (squares of approximately one inch, five to seven squares across and down). Each student, by passing the sheet around, has others fill in a verb, noun, preposition, adverb, adjective, pronoun, etc., until filled. Each then makes a list of all words found on his/her card which is given to the teacher who then cuts each word out for "calling purposes." Proceed as in regular Bingo.

SOURCE: Foreign Language . . . Game Plans for a Successful Season, OK: State Department of Education, 1981.

TITLE: Life Cycle

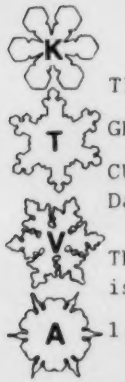
GRADE LEVEL: 7-9

CURRICULUM AREA(S): The Arts (visual arts), Science

To develop an understanding of changes which occur in a living plant, to use the term life cycle, to develop the habit of recording observations, use the record as evidence of an occurence and as elements of a visual composition.

Give each student three bean seeds. Examine them with magnifying glasses, identify their properties (color, shape, texture, etc.). Ask students to draw their seeds on a data card. Tell them they are going to plant the beans, watch to see what happens and record that on their cards. Have each student plant their beans and discuss procedures for caring for them. Ask them to draw illustrations on their data cards at the time of important developments (seed, first leaves, many leaves, pods, etc.) and to be sure to record the date. As beans mature, open some of them and compare with some like those planted. Give them their set of data cards and ask them to glue them in sequence on a large sheet of paper in a circle. Write "Life Cycle of a Bean" in center of a circle. This procedure could be used for other living things.

SOURCE: Connections: Linking the Arts and Basic Curriculum, OK: State Department of Education, 1980.



TITLE: Modern Dance

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Modern Dance, P.E.

The objective of modern dance is to:

1. develop a well-disciplined and controlled body.
2. develop a movement vocabulary of dance skills.
3. understand elements and principles of movement expression.
4. study similarity, variety and distinctiveness in dance.
5. relate development in dance to comparable development in the other arts.
6. develop abilities oriented toward group and individual creativity, performance, choreography and research.

SOURCE: A Lifetime Experience, Physical Education Activities, K-12, OK: State Department of Education, 1981.

CONTENT

Level: I	II	III
TECHNIQUES	EXPLORING DANCE	DANCE COMPOSITION
A. Axial	A. Elements	A. Design
1. Flexibility	1. Level	1. Floor
2. Strength	2. Direction	2. Spatial
3. Balance	3. Focus	3. Group relations
4. Agility	4. Contour	
5. Coordination	5. Tempo	B. Form
6. Posture awareness	B. Qualities	1. One-part
	1. Swing	2. Two-part
B. Locomotor	2. Sway	3. Three-part
1. Walk	3. Percussive	
2. Run	4. Sustained/ legato	C. Creativity
3. Leap	5. Staccato	
4. Jump	6. Suspension	
5. Hop	7. Collapse	
6. Slide	8. Vibratory	
7. Gallop		
8. Skip	C. Creativity	
C. Rhythm		
1. Meters		
2. Accents		
3. Even		
4. Uneven		
D. Creativity		

TITLE: Critical Listening and Conversation

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Critical Thinking

1. The art of conversation requires a thoughtful and tactful exchange of relevant ideas. In order to improve the art of conversation, the art of listening must also be improved. Introduce this assignment to students by mentioning the importance of conversational skills. Stress that informed conversation allows a student to participate intelligently in discussion and development of ideas--a first step toward acting on those opinions.

2. Group students in fours. Appoint a reader/leader for each group. Each day (Monday through Thursday) a different student will take this role; thus, the leadership role will be "passed" among the students. Each group will need a copy of the newspaper you have selected.

3. Look through the newspaper in advance, choosing both an objective front-page article and a subjective editorial or letter related to the front-page article. You may also want to compile a list of vocabulary words from the article to discuss and define before reading starts.

4. Reader/leaders then read the assigned material out loud to their group members. After each reading is completed, the reader / leader initiates a discussion following the procedure outlined on the activity sheet, "The Lost Arts: Discussion Guide," page 323. One rule needs to be emphasized: each member of the group must speak at least once after each reading. When the group has finished discussing the assigned material, they should initiate a conversation about the material with another group. (Don't bypass this step. It is a vital part of developing the conversational experience necessary for developing speaking and listening skills).

5. On Friday you may take over as reader / leader, shaping the discussion to consider the week's work. If you have selected articles which are related to each other, you will find that students have a common pool of information for discussion by the end of the week. You may wish to make one day a week a discussion day once students have learned how to discuss.

SOURCE: Participate in An American Partnership, OK: State Department of Education, 1982.

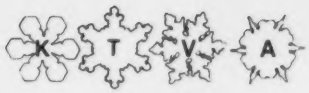
TITLE: Illustrating Classics

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Art, Reading, Literature

Students listen to tapes of books making illustrations at intervals. Comparison is made of students' illustrations and trade book illustrations.

SOURCE: Metamorphosis, OK: State Department of Education, 1982.



TITLE: Book Report

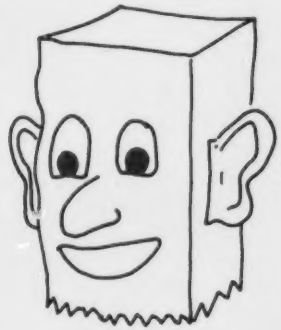
GRADE LEVEL: 7-8

CURRICULUM AREA(S): Art, Literature

Design, draw and color a filmstrip. Use write-on film or recycled old filmstrips.

Create a mobile. Draw a character or scene to be used. Hang by fishing line from a hanger or short piece of doweling.

Design and make a puppet to go with a book. It may be one of the major characters of a story narrator. Use lunch bags for simple and inexpensive puppets.



TITLE: Making a Super 8mm Film

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Language Arts

Select a poem or short story to illustrate. ("Ode: Intimations of Immortality from Recollections of Early Childhood" by William Wordsworth works well.)

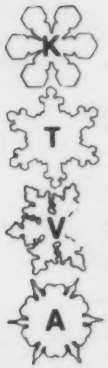
Divide the class into 3 groups with preferably 5 or 6 per group.

Assign one section to each group. Each writes the scenes including camera angles, actors' directions, length of time, setting and narration.

Plan shooting times.

Shoot film according to the convenience of scenes.

SOURCE: A Wide Spectrum of Ideas - Activities for Teaching Effective Writing, Listening and Speaking Skills, OK: State Department of Education, 1981.



TITLE: Pollution Mobiles

GRADE LEVEL: 7-10

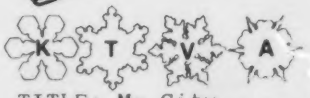
CURRICULUM AREA(S): Art, Health, Science, Social Studies

This activity involves the collection of pollutants that would possibly be found in local waterways. Children bring various items that they feel would harm the environment.

Each item is suspended by yarn or string from coat hangers that hang from the ceiling. These "mobiles from trash" create an interesting effect and are unusual.

After studying the various kinds of pollutants, discuss which one is the major problem in your city and how this differs from pollutants in other cities.

SOURCE: Touching, Living, Growing . . . Elementary Social Studies, OK: State Department of Education, 1981.



TITLE: My City

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Social Studies

Walk through a cemetery in your city. Look for the older grave markers. Read the inscriptions and copy several that are interesting. Write stories about the lives that these markers represent. The students might reproduce the gravemarker on poster board and hold it up as they tell the story of this early cityan. Students could produce their own headstones and provide their own inscriptions, figure dates, create rubbings and alphabetize family names.

Construct your own scrapbook entitled "The History of (My city's name." Use all information from previous activity.

SOURCE: Touching, Living, Growing . . . Elementary Social Studies, OK: State Department of Education, 1981.

TITLE: Word Processing

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Language Arts

Audrey Elliott, who teaches academic skills at Incarnate Word College in San Antonio, Texas, uses "word processing," complete with computer terms, to bring grammar lessons to life.

"Take out your floppy disk and your disk drive," she begins, holding up an ordinary sheet of paper and a pencil before her astonished class.

She goes on to instruct students to fold the "disk" in half lengthwise, then fold that long strip into six equal parts. This gives them 12 columns in which to store information.

For a review of the parts of speech, students then write a heading above each column: *Program Title*, *Adjectives*, *Adverbs*, *Articles*, *Conjunctions*, *Gerunds*, *Infinitives*, *Nouns*, *Participles*, *Pronouns*, *Verbs*, *Prepositions*.

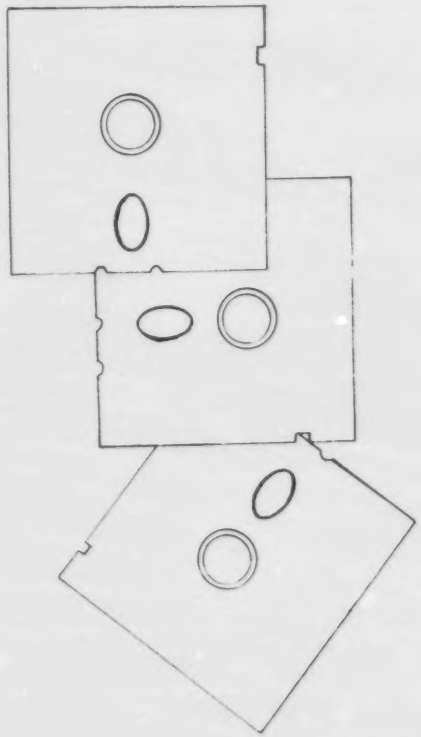
"Now," Elliott continues, think of a topic for which you already have much data in your memory bank." She herself also chooses a topic, which she and the class develop, step by step, to illustrate each instruction she gives.

Elliott and the class first work out a definition for each part of speech. Students then fill their "floppy disks" with 10 examples in each column.

Next, students draft essays on their chosen topics. Elliott reminds them to include an introductory paragraph and a concluding paragraph as well as the central paragraphs that develop the main idea. They also use about five words from each column.

In evaluating the essays, however, Elliott does not count the number of words used from each column. Rather, she notices how often and how effective students have used gerunds, participles, infinitives, conjunctions and prepositions.

She says she finds the students' sentence structure more mature and their ideas more precisely expressed after this exercise. "There's no need to wait for an affordable word processor," she says. "You already have a roomful. Just turn them on, feed their minds and see how they work."



SOURCE: Audrey W. Elliot, "Look Ma--No Hardware!" Idea Exchange, NEA Today (December 1982), pp. 13-14.

TITLE: Color

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Art

Color is a generic property in that it may be used to create other elements of art. Its physical properties (hue, value and saturation) are significant to the creative event.

Color, as we see it, requires light, pigmentation and viewing translation. Color is a method of sensory communication.

Harmony may be achieved through the use of repetition of the same or related colors.

Balance may be achieved through the use of color to counterbalance backward and forward movement in pictorial space. Balance may be achieved through the attracting and directing of attention qualities of color.

Task Processes

Create monochromatic color examples using differing values and intensities of assigned colors.

Experiment with creating a visual balance using two different colors but varying value and/or intensity.

Study impressionistic paintings and duscuss the technical aspects of stimulating the illusion of light and atmosphere.

Creative Tasks

Group Project - Construct a color environment within the classroom using found materials such as ribbon, wrapping paper, cellophane, yarn, crepe paper, streamers, fabrics, etc., with the end result being a composition that is a balanced and harmonious entity.

Create individual weavings (cut paper or yarn) that employ the use of harmonious colors selected to create a color balanced design.

Draw and paint a still life composition that has been viewed through a piece of colored cellophane. The desired result will be a composition that is organizationally harmonious because of the related colors created by the tinted cellophane.

Discussion and Critical Evaluation

Discuss with the class, ways of balancing intense colors with less intense colors through amount or size and creating harmony within a design through the use of repetition of color.

SOURCE: Linda Melders, Jefferson Middle School; Bill McVay, Visual Art Consultant, Oklahoma City Public Schools.

Discuss the scientific aspects of impressionism and the impressionistic artists' expectations of viewer translation.

Discuss the unifying effect created by viewing a scene through colored cellophane or colored glasses.

Vocabulary Words

Balance - A visual equity of felt equilibrium in weight, attention or attraction of the various visual elements of a composition.

Color - The chromatic character of a surface which is the result of the response of vision to light wave lengths reflected from that surface.

Harmony - A unity of the overall visual effect of a composition attained by a repetition of like or similar visual units.

Hue - Refers to light waves reflected from a surface which we have named as red, yellow, etc. Hence, we refer to hue as color name.

Impressionism

A short-lived style of painting that became known for adherence to an almost scientific study of light and color. Objects were usually portrayed with a series of short strokes or dots of different colors that were applied side by side to the canvas and allowed the viewer to translate these colors into one hue visually.

Saturation or Chromatic Purity

The brightness or intensity of color light waves reflected from color pigment. The closer to actual spectrum color reflected light is (purity), the higher the intensity. Lower intensity colors contain complimentary light waves and are less pure.

Value

Lightness or darkness of a color surface. Value is created by the quantity of light reflected from pigment color.

Media And/Or Technique To Be Studied

Environmental art
Painting, acrylic or tempera
Paper cutting
Weaving
Watercolor
Drawing, landscape and still life

Expectations of Students

Students should:

1. Demonstrate the ability to create differing values and intensities of color.
2. Demonstrate the ability to create balanced and harmonious compositions.
3. Recognize and make use of the color techniques of impressionism.
4. Understand and make use of viewer translation of color.
5. Demonstrate an understanding of the theory of viewer translation of color in an oral or written presentation.

TITLE: Discriminating Between Narrative, Descriptive and Expository Paragraphs

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Language Arts

1. Class discussion [5 minutes; times given are approximate].

   What is a paragraph?

   [Group of sentences, where a sentence is a group of words expressing a complete thought; sentences are about a unitary idea, theme or experience; paragraph in prose indented to facilitate comprehension.]

   Make a board summary of the cogent points to be copied into notebooks.

2. Exercise [5 minutes]

   Distribute copies of Exercise 1 and give the following instructions:

   This long paragraph is actually composed of three short paragraphs. Find and mark on the copy where one paragraph ends and the next begins. Answer this question about each paragraph [write on board];

   "What is the writer's purpose? I.e., what is the author trying to do or to tell us?"

SOURCE: David E. Hunt, Department of Applied Psychology, The Ontario Institute for Studies in Education, Toronto, Ontario.

3. Class discussion [6 minutes]

   In taking up the exercise, discuss the three kinds of paragraphs - descriptive, expository and narrative; and how and why they differ. Make notes on the board as the discussion progresses. Refer to the exercise to illustrate differences.

   Points you would discuss:

   a. descriptive
      to create a picture with words; to use words so vivid that every reader will be able to imagine the image
   b. narrative
      to describe an event, experience or situation; to tell a story; to make it interesting, exciting, climactic
   c. expository
      to explain how to do or make something; to present a point of view; to convince or teach the reader

4. Seat work [4 minutes]

   Students copy board notes from number 3 into their notebooks, along with the exercise sheet.

5. Exercise [5 minutes]

   Assignment: Write in your notebooks two topics that you would enjoy writing a descriptive paragraph about.

   Write two topics for a narrative and an expository paragraph also.

   e.g., descriptive - My big toe
   narrative - ambushed
   expository - How Not to Teach

   [give these examples on the blackboard]

6. Class discussion [8 minutes]

   Under headings "Descriptive," "Narrative," and "Expository" on the board, write a few topics volunteered by students under each. Briefly discuss strengths and weaknesses of each as potential topic. Students will copy at least four of each into their notebooks.

7. Homework assignment [2 minutes]

   Students copy the following question into their books and answer before next period:

   "What type of paragraph(s) would you find in

   a) a recipe
   b) a detective story
   c) an advertisement
   d) a biography
   3) a novel
   f) a geography textbook?

   You may find that more than one type of paragraph could be appropriate."

EXERCISE 1

Be simple, unaffected; be honest in your speaking and writing. Never use a long word when a short one will do. Do not call a spade a well-known oblong instrument of manual industry; let a house be a house, not a residence; a place a place, not a locality; and so of the rest. When a short word will do, you always lose by using a long one. You lose in clearness, you lose in honest expression of your meaning; and in the estimation of all men who are competent to judge, you lose in reputation for ability. I heard it, too - a shuffling footstep in the room above, and then a creak from the steps, and then another creak and another. I saw Jim's face as if it had been carved out of ivory, with his parted lips and his staring eyes fixed upon the black square of the stair opening. He still held the light but his fingers twitched, and with every twitch the shadows sprang from the walls to the ceiling. As to myself, my knees gave way under me, and I found myself on the floor crouching down behind Jim, with a scream frozen in my throat. And still the step came slowly from stair to stair. We sleep, and at length, awake to the still reality of a winter morning. The snow lies warm as cotton or down upon the window-sill; the broadened sash and frosted panes admit a dim and private light which enhances the snug cheer within. The stillness of the morning is impressive. The floor creaks under our feet as we move toward the window to look abroad through some clear space over the fields. We see the roofs stand under their snow burden. From the eaves and fences hang stalactites of snow, and in the yard stand stalagmites covering some concealed core. The trees and shrubs rear white arms to the sky on every side; and where were walls and fences, we see fantastic forms stretching in frolic gambols across the dusky landscape, as if nature had strewn her fresh designs over the fields by night as models for man's art.

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TITLE: Unexpected Events

GRADE LEVEL: 9-12

CURRICULUM AREA(S): Language Arts

Stage an unexpected interruption of class routine by a faked event. [Advanced students, drama students or teaching colleagues on their pre-period can help you out.] Afterwards, have the students write a spot news story.

SOURCE: A Journalism Up-Date: for the Teacher/Advisor, OK: State Department of Education, 1982.

TITLE: TV Guide Treasure Hunt

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Language Arts

Find and underline in a TV schedule one example of each item named below. Write the page number of the blank line at the end of each item.

(Variations: Write the name of the show on the blank provided; for beginning readers, parents and child read over the selections and then let the child respond orally.)

1. a daily talk show

   _____

2. a daily game show

   _____

3. a sport special

   _____

4. a weekly stunt show

   _____

5. a movie that starts between 7:00 pm and 9:00 pm

   _____

6. a nightly game show

   _____

7. a show dealing with government or politics

   _____

8. a national news report

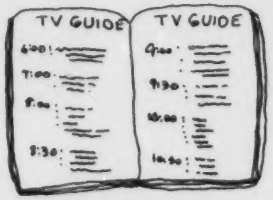
   _____

9. a fine arts show

   _____

10. a local news report

    _____



SOURCE: Reading: Parents, Teachers and Kids, Inc., OK: State Department of Education, 1982.

TITLE: Who Am I?

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Social Studies

On a world map, locate the students' city, state, nation and continent. Review the seven major continents.

Use a world map to compute the distances between the students' city and these major world cities: Tokyo, Rio de Janeiro, Sidney, Cairo, London, Moscow, Paris, New York City, Toronto.

On a world map, identify boundaries of nations which are marked by natural landforms (e.g., mountains, rivers, oceans). Compare to political boundaries.

Choose one continent other than Antaracticia or North America. List the countries of that continent in alphabetical order.

SOURCE: Touching, Living, Growing, Elementary Social Studies, OK: State Department of Education, 1981.

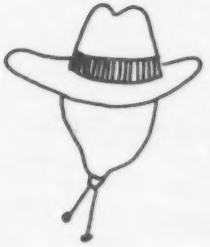
Collect brochures from a local travel agency. Plan an itinerary to a foreign country. Consider climate, appropriate dress, cost, time changes, health and passport regulations, and points of interest. Present to class.

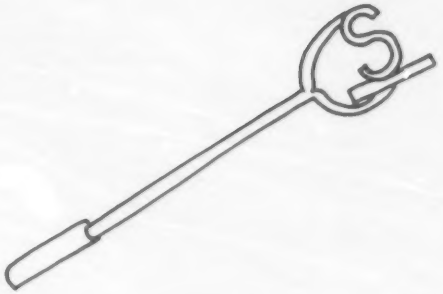
TITLE: Cattle Drive

GRADE LEVEL: 9-10

CURRICULUM AREA(S): Language Arts, Social Studies

Investigate the job opportunities on a trail drive. What were the duties and qualifications for trail boss, drover, cook, wrangler, etc.?





SOURCE: Oklahoma . . . OK, OK: State Department of Education, 1981.

TITLE: Careers Bingo

GRADE LEVEL: 9-12

CURRICULUM AREA(S): Careers Education, Foreign Language

"Careers Bingo" is a game designed to show the variety of careers which use foreign language skills, as well as the many locations, domestic and foreign, where these jobs can be found.

The cards, designed after the Bingo cards, have a different language heading above each column instead of the "B", "I", etc. The squares, instead of numbers, have the name of a career (author, teacher, secretary, engineer, etc.). The teacher's master sheet will have all of the careers listed under each language. As the teacher describes a career, she covers (checks off, etc.) it, hoping to ultimately come up with a Bingo.

The career descriptions may be made up ahead of time and drawn out to be read off, or if preferred, may be made up on the spot by the teacher. A typical description could be: "You are a reporter assigned to Montreal where your fluency in French helps you to get both sides of the issues in Quebec." The student looks in the French column and covers "reporter."

Suggested careers are: author, buyer, interpreter, reporter, hotel manager, travel agent, secretary, teacher, policeperson, film director, translator, importer/exporter, nurse/doctor, engineer, editor, airline stewardess, cruise ship personnel, international banker, or lawyer, sales representative, and community-services director.

One can be as plain (You are a member of the diplomatic corps in Berlin) or as fanciful (You are a marine biologist who, because of your fluency in French, has been given a chance to work with Jacques Cousteau) as you wish to be. The students cannot help but be exposed to a wide variety of career possibilities which use foreign language skills.

SOURCE: Foreign Language Post: Impact of Public Relations Realized, OK: State Department of Education, 1982.

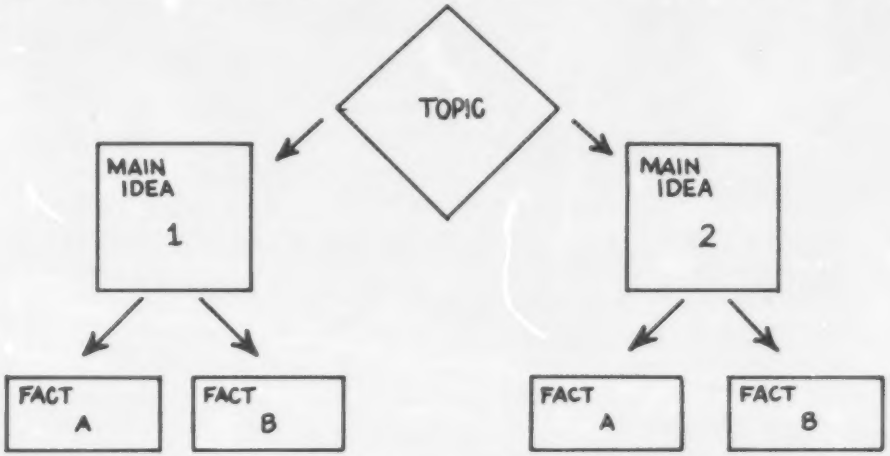
CAREERS
FRENCH
GERMAN
LATIN
SPANISH
AUTHOR
TRANSLATOR
EDITOR
FILM DIRECTOR
LAWYER
IMPORTER / EXPORTER
TEACHER
SALES REP.
POLICEPERSON
DIPLOMAT
AIRLINE STEWARDESS
ENGINEER
BUYER
TRAVEL AGENT
REPORTER
NURSE / DOCTOR

TITLE: Paragraph Writing

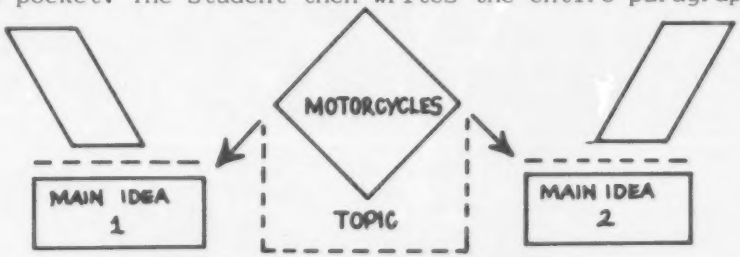
GRADE LEVEL: 7-12

CURRICULUM AREA(S): Language Arts

The following diagram can be used to teach students to write better paragraphs. The student uses the diagram instead of an outline since the diagram is more concrete. The diagram can be extended for longer writing assignments. Students can be taught to outline once they have mastered the use of this chart.



The chart may be put on cardboard in such a way that there are pockets for each part of the diagram. The teacher then gives the students slips of paper with the appropriate ideas and they then put each slip into the appropriate pocket. The student then writes the entire paragraph.



SOURCE: Exceptions: A Handbook for Teachers of Mainstreamed Students. Oklahoma Child Development Center and Developer, Cushing, Oklahoma.

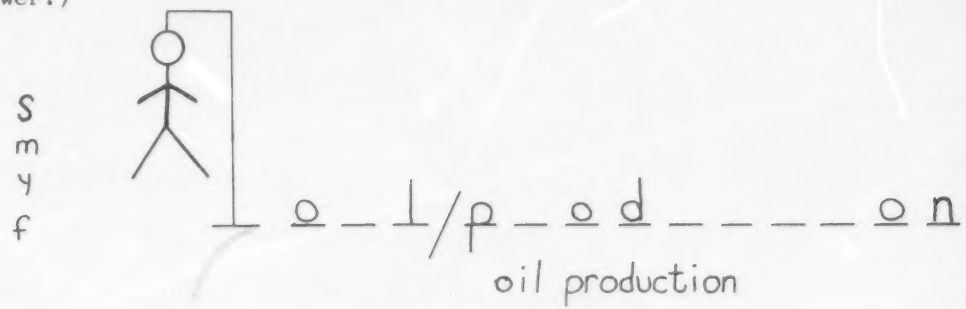
TITLE: Hangman

GRADE LEVEL: 7-12

CURRICULUM AREA(S): All

Use this activity for the end of a period when there are only two or three minutes of class time left. Using subject terms, play "Hangman" with the students. Use words from films, newspapers, maps or current lessons. Try to use vocabulary words or phrases that the students have seen or heard that day; e.g., "tributary," "literature," "cotton," "cattle," "representative," "aerospace," etc. This quick game at the end of a class period can be used to reinforce a concept, and it encourages the students to focus on subject matter for the full class period.

Let the students provide the key sometimes instead of the teacher. There are only two rules: (1) the word or phrase must be relevant to the day's topics, and (2) half the letter spaces must be filled correctly before anyone may say the word. (This prevents a great deal of guessing and gives slower-thinking students a better chance of figuring out an answer.)



SOURCE: Classroom Learning Activities for Social Studies (CLASS), OK: State Department of Education, 1982.

TITLE: The Voting Decision

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Social Studies

Divide the class into two groups to represent our two-party system. If you wish, of course, you can divide the class into more groups, but fairly large groups are needed since each party must later divide into four committees.

Read over the student handout, "The Voting Decision," to familiarize yourself with the eleven steps in the game. Duplicate enough copies of the handout for every student to receive a copy.

Prepare other materials necessary for the game simulation (have enough so that each student has one of each):

"Sample Registration Form"
"Voter Registration Cards"
"Official Ballot"
"Issues Slips"

You may need extra copies of the Voter Registration Cards for those who will make mistakes and need new ballots. You may want to number ballots to assure authenticity.

Cut apart the Issues Slips for distribution to party leaders later in the game.

Prepare or direct students to prepare a spiral notebook to use for the precinct rolls. Precinct rolls must include the name, address, party affiliation and date of registration or last voting date for every officially registered voter in the precinct. (Election officials can use the registration forms to prepare the precinct rolls.)

You will also need some method of setting up two voting booths. Study carrels or hanging dividers work well.

Pencils, a table, a ballot box.

Once election board officials are selected you may want to meet with them and go over their duties (listed on the student handout). This is a precaution to assure smooth polling. These same students should be responsible for actually setting up the polling station and cleaning up at the end of the simulation.

The entire simulation will take a minimum of three class periods.

The simulation will probably work better if you actualy allot more than the three periods, especially if your students are younger.

Reinforce the need for committees to fill in a decision tree on their assigned issues so that the decision-making aspect of voting is emphasized. Many students will otherwise not think seriously enough about the choices before voting. You may even want to require each student to fill out a decision tree on each issue as a homework assignment the night before the election. If you choose to do this, take up committee decision trees so that students cannot just "copy" committee reports. Tell students that their individual decision trees will be confidential.

You may wish to bring in an actual election official to speak to the class before the simulation. Sometimes arrangements can be made to borrow real polling station equipment - machines, ballot boxes, voting carrels, etc.

After the simulation, you may want to discuss the following statements or topics:

a. Vote - And the Choice Is Yours!
   Don't Vote - And the Choice Is Theirs!

b. Those who don't vote, are, in effect, voting.

c. It doesn't make any difference how you vote as long as you vote.

d. Some people believe voting is so important that they favor a compulsory voting law or taxing the non-voter. Ask students to consider whether or not they would favor such a law.

e. The 26th Amendment to the Constitution was ratified at the end of June, 1971, and gave the vote to 18-year-olds. More than 11 million new citizens from the ages of 18 to 21 were added to the list of eligible voters. Results show that people between the ages of 18 and 24 are the least likely to vote. Ask students to consider the reasons younger Americans do not vote in larger numbers.

Results of the 1976 Presidential Election Voting Statistics —

18 - 24	42.2%
25 - 34	55.4%
35 - 44	63.3%
45 - 54	67.9%
55 - 64	69.7%
65 +	62.2%

NOTE: Remember to remove all political posters and campaign material from the actual polling station prior to the election.

SOURCE: Participate in An American Partnership, OK: State Department of Education, 1981.

THE VOTING DECISION

Your class has been divided into two political parties in order to simulate a short political campaign. You need to complete the following decisions in order. Use consensus, authority or voting to make decisions.

Step 1: Choose a name for your party and an animal to serve as your party's symbol. Also choose a party slogan.

Step 2: Choose a leader who can lead the party to victory in evaluating the consequences of alternatives to be settled in an upcoming election. Report choice and method to the Secretary of State.

Step 3: Decide what two party members your party will recommend to the Secretary of State (your teacher) to help set up the election process. If your recommendations are approved by the Secretary of State, your two members will serve on the election board. The election board is responsible for appointing election judges and clerks to staff voting places, watching the other party register voters and helping arrange tables, chairs, registration, ballots, ballot boxes, voting booths and so on at the polling place. Report choice and method to the Secretary.

Step 4: Once approved, your election board members must recommend two party members for other duties: one for election judge and one for election clerk. They may ask for recommendations or volunteers from the entire party or use their own authority to select the members. The election judge and election clerk will register people to vote, serve as election officials helping people to vote, keep order at the polls, check voter registration and count the ballots. Report choice and method.

Step 5: Party leaders will need to divide their party members into four groups to consider the four issues to be settled in the upcoming election. Each committee will list the negative and positive consequences of one issue on a decision tree and report recommendations for voting to the party as a whole.

Note: Party members will vote as concerned citizens, but as individuals. They are not required to vote as the party recommends. Individual citizens are to use the party to help them weigh the consequences of issues. Using group decision-making skills, both parties may actually arrive at the same decisions for voting on the issues. Parties do not have to disagree. After all, both parties are working for the good of the state as they see it.

Step 6: Party leaders will distribute one issue to each committee. The leader will inform the electorate of all issues. Each committee will fill in its decision tree after discussion and report the group findings to the party.

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Step 7: Citizens cannot vote unless they are registered according to state law. Each party is responsible for getting its members to the registration place. The County Election Board will have arranged for the registration place to be equipped with table, chairs, pencils, registration forms, and an American flag. The registration forms will be used to compile the precinct register for use in the polling place during the actual election. During registration, party members should be hearing committee reports on the issues in the upcoming election.

Step 8: The campaign begins. Members of each party can give speeches for or against any issue, providing that your speech states your committee and party stand on the issue and gives specific examples of why you are for or against the consequences of an issue. Posters illustrating the issues in the campaign should be made and displayed. Be sure to include your party name and symbol on every poster.

Step 9: Election officials should advise party members how to proceed during the polling process. Mention:

a. When electors appear in a polling place to vote, they should announce their names and addresses to election officials. Proof of identification must be given by showing your registration card.
b. After identification is established, an election official will check to see if the elector is duly registered.
c. Upon verification, the elector will be asked to sign the poll book.
d. The election official in charge of ballots will then hand the ballots to the elector who will then go to the voting compartment to mark the ballots. Remember that no one should enter the voting booth with you or speak to you during voting. You will be limited to five minutes in the booth so make decisions ahead of time.
e. In marking a ballot, use a black pencil to place an "X" in the "Yes" or "No" space on each issue. No mark should be made on a ballot which would in any way identify the person who voted. If a ballot is torn, soiled, or if the "X" is outside the box, or if a check is used, that ballot is void. It may be returned to the election official and another ballot will be issued. No more than three ballots will be issued under any circumstances, so be careful.
f. Before leaving the voting booth, fold your ballot so that the markings are not visible and deliver the ballot to the official in charge of the ballot boxes. In the presence of the voter, the official will place the ballots in the proper box. The voter should then immediately leave the polling place.

Step 10: Vote according to law.

Step 11: When the polls close, election officials will count the ballots, deliver the results to the election board, and the Secretary of State will then announce election results.

SAMPLE VOTER REGISTRATION FORM

NAME _____
Last First Middle

ADDRESS _____ _____
Number and Street or P.O. Box

_____ _____
Town or City Zip Code

Room Number _____ Class _____
(Home Room) Hour and Teacher

Age _____ Birth Date _____
Month Day Year

Are you a native born citizen? ☐ Yes ☐ No

Naturalized? ☐ Yes ☐ No

Have you lived in the county 30 days? ☐ Yes ☐ No

I swear or affirm that the above statements are true.

_____ _____

Subscribed before me _____
Month

_____ 19____.
Day Year

_____
Signature of Registrar

_____
Signature of Verifying Official (teacher)

CUT APART AND DISTRIBUTE ONE SET OF CARDS TO EACH POLITICAL PARTY LEADER

ISSUES SLIP #1 Should parents have to pay for property their children damage? YES NO	ISSUES SLIP #2 Should competency tests be required for high school graduation? YES NO	ISSUES SLIP #3 Should driver's education be required as a qualification for all new driver's licenses? YES NO	ISSUES SLIP #4 Should higher education be tuition free to all state residents who qualify for college admission? YES NO
ISSUES SLIP #1 Should parents have to pay for property their children damage? YES NO	ISSUES SLIP #2 Should competency tests be required for high school graduation? YES NO	ISSUES SLIP #3 Should driver's education be required as a qualification for all new driver's licenses? YES NO	ISSUES SLIP #4 Should higher education be tuition free to all state residents who qualify for college admission? YES NO

DUPLICATE ENOUGH COPIES FOR EACH STUDENT TO RECEIVE A CARD

All information should be printed except for the two signatures. No one will be allowed to vote if registration card is lost.

VOTER IDENTIFICATION CARD name of voter party precinct signature of voter signature of registrar	VOTER IDENTIFICATION CARD name of voter party precinct signature of voter signature of registrar	VOTER IDENTIFICATION CARD name of voter party precinct signature of voter signature of registrar	VOTER IDENTIFICATION CARD name of voter party precinct signature of voter signature of registrar
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OFFICIAL BALLOT

Place an "X" in the box next to "Yes" or "No" after each question on your ballot. The "X" must be inside the box. No other mark is valid.

Should you make a mistake, soil or tear your ballot, fold the ballot and return it to the election official who gave it to you. You will then be issued another ballot.

Do not make any distinguishing marks on the ballot which would serve to identify the voter. This will invalidate the ballot.

Do not speak to anyone while you are voting or show your ballot to anyone. Fold your ballot after voting so that your votes do not show.

When you have finished voting, give your ballot to the election official and watch to see that it is placed in the ballot box.

ISSUE #1: Should parents have to pay for property their children damage?

☐ YES ☐ NO

ISSUE #2: Should competency tests be required for high school graduation?

☐ YES ☐ NO

ISSUE #3: Should driver's education be required as a qualification for all new driver's licenses?

☐ YES ☐ NO

ISSUE #4: Should higher education be tuition-free to all state residents who qualify for college admission?

☐ YES ☐ NO

TITLE: Heat Retention

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Science

Paint four (4) juice cans with a different color poster paint (white, black, green, red).

Fill each can with the same amount of hot water.

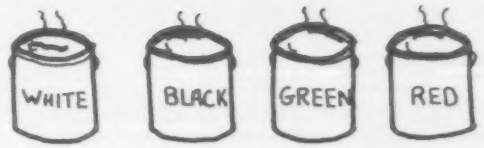
Add food coloring to the hot water corresponding with the color of the can. NOTE: Add drops of all colors together to get black, and add no color to the water in the white can.

Place a thermometer in each can.

Record the temperature of the water in each can every three (3) minutes until the water cools. Make a graph of the results.

Have students answer the following questions:

1. Which color held heat best?
2. What is the best color to paint a house to keep it warm in the winter?
3. Would a house with a dark roof be more or less expensive to air condition in the summertime? The wintertime?



SOURCE: Outdoor Education, Issues & Investigations, OK: State Department of Education, 1981.

TITLE: From Forest to Cactus

GRADE LEVEL: 7-10

CURRICULUM AREA(S): Science, Social Studies

Compare the different geographical regions of the state. Prepare a class terrarium and cactus garden. Note the different types of plants, soil and moisture requirements for each to thrive.

SOURCE: Oklahoma . . . OK, OK: State Department of Education, 1981.

TITLE: Punctuation - Quotation Marks Used in Direct Quotes

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Language Arts

Have the students look at cartoons in the newspapers and select some favorites.

Using different students for each character in the cartoon, let them read and/or act out the dialogue.

Ask students to identify the common elements of all the "clouds" in the cartoon strip. Note: "Clouds" are all direct quotes of the character speaking.

Allow time for students to investigate the way direct quotes are recorded in paragraph form in books, magazines and newspapers.

Show how quotes are transferred from the cartoon "clouds" to the written page format using quotation marks, punctuation and the speaker's name with words like "said, answered." Solicit different terms to use instead of "said" such as roared, moaned, inquired. Make a list of these words on the board.

Provide drawing tools such as free-flowing felt markers, rolling writers (ball point-like pen), pencils or crayons. Select an event or happening of current interest to the students. Instruct students to design cartoon characters to engage in conversation regarding the event. This conversation will be written in the "clouds" which could be drawon on white paper, cut out and pasted on the backgrounds or drawn into the design of each box. Ask students to focus on expressing the thoughts or feelings of the characters through the use of the lines.

SOURCE: Connections: Linking the Arts and Basic Curriculum, OK: State Department of Education, 1980.

TITLE: Which Native Americans Lived in Oklahoma?

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Art, Music, Social Studies, Speech

In small groups, research the following tribes of Native Americans who resided in Oklahoma: Alabama, Anadarko, Apache, Apalachicola, Arapaho, Caddo, Cahokia, Catawba, Cayuga, Cherokee, Cheyenne, Chickasaw, Chippewa (Ojibwa), Choctaw, Comanche, Conestoga, Creek, Delaware, Eel River, Erie, Hainai (Ioni), Hitchita, Illinois, Iowa, Kaskaskia, Kaw (Kansas or Kansa), Kickapoo, Kiowa (Katakas), Moingwena, Munsee, Natchez, Nez Perce, Osage, Oto-Missouri, Ottawa, Pawnee, Peoria, Piankashaw, Ponca, Potawatomi, Quapaw, Sauk (Sac)-Fox, Seminole, Seneca, Shawnee, Skidi, Stockbridge, Tamora (Tamoroa), Tawakoni, Tonkawa, Tuscarora, Tuskegee, Waco, Wea, Wichita, Wyandotte, Yuchi.

On a large map of Oklahoma locate the territory of each tribe reported on.

Have students create personal picture language to communicate a message with no written words. Exchange messages and attempt to decode them.

Take large pieces of brown butcher paper. Fold and wad it up repeatedly to soften. Tear to the shape of animal skins. Have students write messages in Native American picture writing symbols on "skins."

Study sign language. (Cub Scout Manuals or local Native Americans are good sources.) Invite a local Native American to teach the class a song or poem in sign language.

Research famous Oklahoma Native Americans from the state's early history: Chief Joseph, Chief Tishomingo, Sequoyah, Osceola, Stand Watie, Maria Tallchief.

Plan a field trip to a Native American museum such as Tsa-La-Gi, the Cherokee Indian Nation Headquarters, Tahlequah.

Invite a local Native American to class to teach a song, cook a food, tell of customs, teach a game or share a legend.

On a state road map, circle the names of rivers, counties and cities whose names are of Native American origin.

Read selections to the class from Mini-myths and Legends of Oklahoma Indians or Indian Cultures of Oklahoma (p. 90).

Role play encounters between famous Native Americans and other famous Oklahomans who may or may not have met each other.

SOURCE: Classroom Learning Activities for Social Studies (CLASS), OK: State Department of Education, 1982.

TITLE: Understanding Foods

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Economics, Home Economics

Organize the class into small committees and have them do comparison shopping on ten items in at least three stores. Compare and discuss the results.

Plan and organize a field trip to the following types of stores: discount, variety, department and specialty. Debrief after the field trip.

Ask a resource person from a chain store to discuss different kinds of retail outlets.

Invite a consumer cooperative representative to explain the operation of co-ops.

Invite a home economist or county extension specialist to discuss good food items.

Compare newspaper advertisements for standard food items.

Have students compare store brands and generic brands that sometimes represent good values at a lower price than nationally advertised brands.

Give four groups a list of 10 food items to check prices at one of the following: supermarket, convenience store, specialty store and cooperative. Emphasize differences in services, charges and deliveries in class discussion afterwards.

Have students form small committees and plan a week's menu for a family of four, using a food budget of $100. Ask a home economics teacher to select the best menus and explain why. If possible, let the students shop and make comparison price checking.

Invite a dietitian to explain good nutrition.

Have students consider factors such as price, quality, convenience, time, energy and location in making food buying decisions.

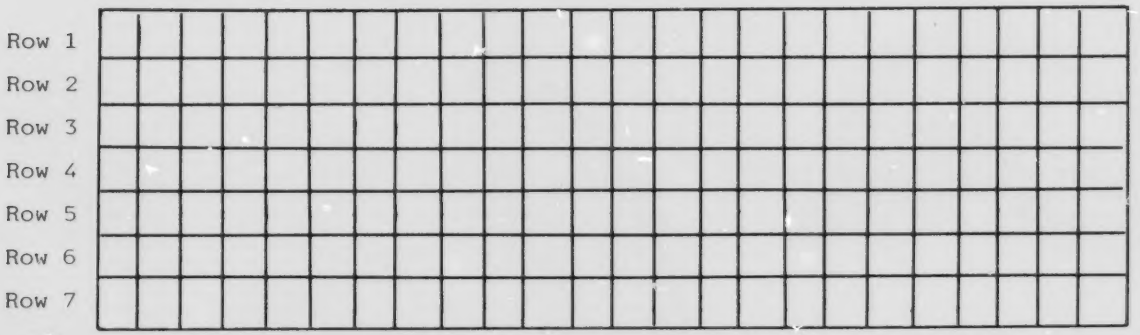
Explain to students what to look for in government inspection stamps, how to read labels and code dating, and how to understand the meaning of grades and packaging.

Have students bring three labels from different brands of the same product. Compare contents, weight, price, etc.

Let the class judge a collage of labels and packaging that the students have made.

Have students compare cost per unit of measure for various forms of food: fresh, frozen, canned or dehydrated.

SOURCE: Consumer Education, K-12, OK: State Department of Education, 1982.



TITLE: Pictures From Space

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Computer Instruction, Math

Did you ever wonder how spacecraft like the Pioneer send pictures to Earth from distant planets?

The sound of a picture returning from space is just a collection of strange "bleeps" and "blips." A computer is able to turn these sounds into a picture.

Follow the code to make your own picture. Leave "bleep" squares blank and fill in "blip" squares with pen or pencil.

SOURCE: High Flight - Aerospace Activities, K-12, OK: State Department of Education, 1982.

Row 1 bleep-bleep

Row 2 bleep-blip-bleep-bleep-bleep-blip-bleep-bleep-bleep-blip-bleep-bleep-bleep-blip-blip-blip-blip-bleep-bleep-bleep-blip-bleep-bleep-bleep

Row 3 bleep-blip-blip-bleep-bleep-blip-bleep-bleep-blip-bleep-blip-bleep-bleep-blip-bleep-bleep-bleep-bleep-bleep-blip-bleep-blip-bleep-bleep

Row 4 bleep-blip-bleep-blip-bleep-blip-bleep-bleep-blip-blip-blip-bleep-bleep-blip-blip-blip-blip-bleep-bleep-blip-blip-blip-bleep-bleep

Row 5 bleep-blip-bleep-bleep-blip-blip-bleep-blip-bleep-bleep-bleep-blip-bleep-bleep-bleep-bleep-blip-bleep-blip-bleep-bleep-bleep-blip-bleep

Row 6 bleep-blip-bleep-bleep-bleep-blip-bleep-blip-bleep-bleep-bleep-blip-bleep-blip-blip-blip-blip-bleep-blip-bleep-bleep-bleep-blip-bleep

Row 7 bleep-bleep

Computer Activities Chart

	TOPICS	COMPUTER AWARENESS													PROGRAMMING											
		K	1	2	3	4	5	6	7	8	9	10	11	12	K	1	2	3	4	5	6	7	8	9	10	11	12
7th	Modeling								IA	C	C	C	C	C													
	Robotics								ID	C	C	C	C	C													
	Social Issues								ID	C	C	C	C	C													
	Data Bases								IA	C	C	C	C	C													
	BASIC: Arrays (One-Dimensional)																						IA	C	C	C	C
	BASIC: Functions																						IA	C	C	C	C
8th	Computer Crime									ID	C	C	C	C													
	Alogrithms									IA	C	C	C	C									IA	C	C	C	C
	BASIC: Arrays (Two-Dimensional)																						IA	C	C	C	C
	Graphics (Sound and Color)																						IA	C	C	C	C
9th	Computer Capabilities										ID	C	C	C													
	Computer-Related Fields										ID	C	C	C													
	BASIC: Simulation Programming																							IA	C	C	C
	BASIC: Matrices																							IA	C	C	C
	BASIC: Files																							IA	C	C	C
	Pilot: Introductory Language Commands																							IA	C	C	C

IA = Introduction with Activities ID = Introductory Discussion C = Expansion of Discussion from Previous Grades R = Review
M = Mastery

SOURCE: Dr. Gary G. Bitter, "The Road to Computer Literacy, Part IV: Objectives and Activities for Grades 7-9," Electronic Learning, January 1982, p. 42. Copyright 1982 by Electronic Learning.

TITLE: Modeling

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Computer Instruction, Math, Social Studies

The student can develop a specific plan to solve general problems.

Create various-sized rectangles on the chalkboard. Have students record lengths, widths and perimeters of each. Identify a model (in this case a formula) to find the perimeter of a rectangle. Develop other models (formulas) to compute the area of any region enclosed by lines.

Have students collect data on the school population for the past ten years. Using this information, develop a model to predice the enrollment for the next ten years.

TITLE: Robotics

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Computer Instruction, Science, Social Studies

The student can discuss robotics and give examples of applications.

Look up the word "robotics" in various resources. Have students collect fiction and non-fiction articles on robotics and bring them to class for discussion. Discussion topics should include robot intelligence; the credibility of science fiction robots presented on TV, in movies and in books; advantages and disadvantages of robots; future impact of robots on jobs and people; and the Japanese plan to find new jobs for people displaced by robots. Point out that there will be many new jobs to manufacture, maintain and market the robots.

Determine if there are any robot applications in nearby factories or businesses. If so, plan a field trip to the site so that students can see robots in action.

Assign a short essay or short story to each student on the topic of robotics. Topics could include robotics in factories; a report on the development of robotics in the last ten years; or a story on what robots might be doing in the year 2100.

SOURCE: Dr. Gary G. Bitter, "The Road to Computer Literacy, Part IV: Objectives and Activities for Grades 7-9," Electronic Learning 2 (January 1983): p. 42. Copyright 1983 Electronic Learning.

TITLE: Social Issues

GRADE LEVEL: 7-9

CURRICULUM AREA(S): All

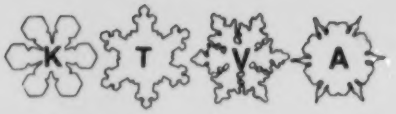
The student can discuss the impact of computers on our lives.

Have students prepare a debate on the positive and negative aspects of computers. Encourage them to bring in examples from articles, real-life situations and other sources to back up their arguments.

Have each student write an essay on a computer-related social issue. Topics could include dehumanization; technological culture shock; the "computer generation"; minority disadvantages in a computerized society; the computer revolution; privacy; "instant democracy" (computerized voting and poll-taking); automation; and advantages for the handicapped.

Have student groups interview psychologists, ACLU members, sociologists, computer programmers, businesspersons and teachers in the community to determine their views and concerns about computers in society.

Organize student skits to dramatize both positive and negative computer-related social issues.



TITLE: Data Bases

GRADE LEVEL: 7-9

CURRICULUM AREA(S): All

The student can explain the purpose of a data base and list several examples.

Have the students list as many data bases as possible (airlines, medical records, banks, school files, government offices, etc.). List possible categories of information for each.

Contact various government agencies (IRS, Health Dept., etc.) to determine the number of computers they use and the number of people listed in their data base files. If a school printout is available, use it to show how information is printed and categorized.

Develop a detailed bulletin board display of the airline data base and how it generally works.

SOURCE: Dr. Gary G. Bitter, "The Road to Computer Literacy, Part IV: Objectives and Activities for Grades 7-9," Electronic Learning, 2 (January 1983): p. 42. Copyright 1983 by Electronic Learning.

TITLE: Basic: Arrays (One-Dimensional)

GRADE LEVEL: 7-9

CURRICULUM AREA(S): All

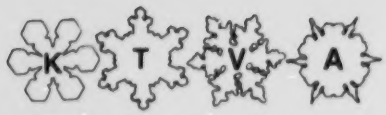
The student can utilize one dimensional arrays in BASIC programs.

Have students write a BASIC program using a one dimensional array to read and print 10 test scores. Have them modify the program to find the average score.

Ask students to explain what this program does:

```
 10 DIM A(20)
 15 FOR I=1 to 20
 20 INPUT A(I)
 30 NEXT I
 40 FOR J=1 to 20
 50 LET B=B + A(J)
 60 NEXT J
 70 FOR R = 1 to 20
 80 PRINT A(R); A(R) * A(R)
 90 NEXT R
100 PRINT "THE SUM ="; B
110 END
```

Describe situations where the one-dimensional array is very useful.



TITLE: Basic: Functions

GRADE LEVEL: 7-9

CURRICULUM AREA(S): All

The student can use BASIC statements to define functions.

Have students use the DEF statement to define a function for use in a computer program. Write a BASIC program to graph a function. For example:

```
10 FOR I = 1 to 40
20 PRINT TAB (I)
30 PRINT "*"
40 NEXT I
50 END
```

Have students graph Y = X + 1 first on paper and then using a computer. Make sure they draw the X/Y axis on the computer. Select another function, such as Y = 2X + 4 and have students take turns plotting the points on a chalkboard. Then plot the graph on a computer.

Discuss the value of functions. Include how functions are used to describe application data.

SOURCE: Dr. Gary G. Bitter, "The Road to Computer Literacy, Part IV: Objectives and Activities for Grades 7-9," Electronic Learning, 2 (January 1983): pp. 42-46. Copyright 1983 by Electronic Learning.

TITLE: Computer Crime

GRADE LEVEL: 7-9

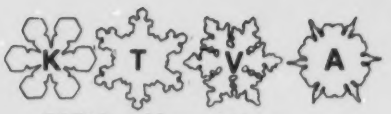
CURRICULUM AREA(S): Computer Instruction, Social Studies

The student can describe several criminal uses of computers.

Research data to compare the average amount of money lost in physical robberies and computer robberies. Also collect information on the number of detected computer crimes which are prosecuted successfully.

Have students write a report on a major computer crime (such as the "round down" fraud of 1968) and present it to the class.

Create a bulletin board display of the types of computer crimes and examples of present-day safeguards to deter this type of crime. Include electronic funds transfer frauds and embezzlements, computer whizzes who create havoc on computer systems and vandalism of computers.



TITLE: Alogrithms

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Math, Science, Social Studies, Computer Instruction

The student can give an example of an alogrithm and its application.

Have the students list all the alogrithms they know.

As a class, write an alogrithm for assigning a letter grade to a class test, for changing Celsius to Fahrenheit, for averaging grades, and for dividing one fraction by another.

Discuss the advantages of using alogrithms in computer programs.

TITLE: Graphics (Sound and Color

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Art, Music, Computer Instruction

The student can utilize sound and color in a computer program.

Discuss how your microcomputer can be made to produce music and sound. Hold a contest with two categories for the best computerized song and the best graphics. Display the entries at open house.

Illustrate examples of both graphics and music in a program and advantages / disadvantages of using either or both. Include discussion of business, home applications and education. Demonstrate the difference between low and high resolution.

Have students write a program to flash all the colors on the screen. As a class, write a program to produce different colored squares on the screen.

SOURCE: Dr. Gary G. Bitter, "The Road to Computer Literacy, Part IV: Objectives and Activities for Grades 7-9," Electronic Learning, 2 (January 1983): pp. 46-48. Copyright 1983 by Electronic Learning.

TITLE: Basic; Arrays (Two Dimensional)

GRADE LEVEL: 7-9

CURRICULUM AREA(S): All

The student can write a BASIC program utilizing a two dimensional array.

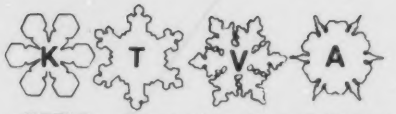
Discuss uses of the two dimensional arrays in programming, listing reasons why computers are ideal for array analogies.

Set up a two dimensional array of your class to include name, address, city, state, zip code, telephone number, sex, age, etc. Have each item be one column of the array.

Discuss why an array is convenient to use and how large an array is needed for your class and school district.

Explain the following BASIC program:

```
5 DIM K$(10,10)
10 FOR I = 1 to 5
20 FOR R = 1 to 3
30 PRINT "TYPE A FIRST NAME"
40 INPUT K$ (I,R)
50 NEXT R
60 NEXT I
70 FOR B = 1 to 5
80 FOR C = 1 to 3
90 PRINT K$ (B,C)
100 NEXT C
110 NEXT B
120 END
```



TITLE: Computer Capabilities

GRADE LEVEL: 7-9

CURRICULUM AREA(S): All

The student can discuss general computer capabilities.

Have the students list all the things they think computers--from micros to mainframes--can do and why. Give examples of tasks a computer can do, but which are more advantageous for humans to do. Then list activities which a computer cannot do and why.

Have student teams choose a field such as science, education, government, medicine, etc., and study the difference between "human" tasks and "computer" tasks in that field. Discuss each group's findings and draw general conclusions about those findings.

SOURCE: Dr. Gary G. Bitter, "The Road to Computer Literacy, Part IV: Objectives and Activities for Grades 7-9," Electronic Learning, (January 1983): pp. 46-48. Copyright 1983 by Electronic Learning.

TITLE: Computer Related Career

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Computer Instruction, Career Education

The student can name the most common computer-related careers and the general responsibilities of each.

Collect data from employment agencies, colleges and universities on the most in-demand computer-related jobs, the responsibilities and education required, the average salary and courses or degrees available. Assemble the data on a bulletin board, along with advertisements, articles, want ads or other related resources. Include information on computer specialists (programmers, system analysts, software developers, etc.) and non-specialists (engineers, teachers, secretaries, etc.).

Find examples of programmer aptitude tests (Computer Learning Center, Washington, D.C.0 and vocational education tests that measure computer skills. Discuss other skills and talents - logical thinking, attention to detail, knowledge of mathematics, typing, etc.--that are required for computer related jobs.

Have students interview career counselors, computer specialists, math/computer teachers and others to determine their outlook on computer-related fields.

TITLE: Basic: Simulation Programming

GRADE LEVEL: 7-9

CURRICULUM AREA(S): All

The student can write a BASIC program to simulate some event or activity.

List the purposes of simulation programs. Have students explain the following program for simulating the toss of a coin:

```
 10 DIM X(2)
 20 LET X(1) = 0
 30 LET X(2) = 0
 40 FOR X = 1 to 100
 50 LET N - INT (RND[X] + 1.5)
 60 LET X(N) = X(N) +1
 70 NEXT X
 80 PRINT "HEADS ="; X(1)
 90 PRINT "TAILS ="; X(2)
100 END
```

Have students change line 40 to read FOR X = 1 to 1000. Explain that the answer is not always 50/50 because of the laws of probability.

As a class, write a computer simulation of a historic event. Draw a flow chart of the event. Assign groups to program each part.

As a term project, assign students to write a computer simulation program using graphics, sound and color, if available. The projects could be in arcade-format or could include group exploration simulations.

SOURCE: Dr. Gary G. Bitter, "The Road to Computer Literacy, Part IV: Objectives and Activities for Grades 7-9," Electronic Learning, 2 (January 1983): pp. 46-48. Copyright 1983 by Electronic Learning.

TITLE: Basic: Matrices

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Math, Computer Instruction

The student can use the BASIC matrix command and apply it to problems.

Discuss matrices and their application in the real world.

Get access to several matrix problems with solutions and write a program using the BASIC MAT statements to solve them. Compare answers

Find a book which shows the actual BASIC programs for the mat commands. Discuss the advantages of having the computer store programs.

TITLE: Basic: Files

GRADE LEVEL: 7-9

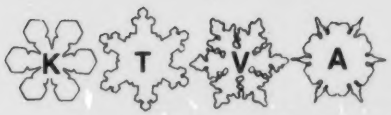
CURRICULUM AREA(S): All

The student can build a file to be accessed by a BASIC program.

Discuss the application of files and determine the format required for your computer.

Write a BASIC program using a file.

Find several large programs which use files and determine their value in programming.



TITLE: Pilot: Introductory Language Commands

GRADE LEVEL: 7-9

CURRICULUM AREA(S): All

The student is familiar with the introductory Pilot commands.

Discuss the use of Pilot and its advantages.

Discuss the difference between BASIC and Pilot. Write a multiple choice response activity in both languages.

Write a multiple choice social studies exam using Pilot.

SOURCE: Dr. Gary G. Bitter, "The Road to Computer Literacy, Part IV: Objectives and Activities for Grades 7-9," Electronic Learning, 2 (January 1983): pp. 46-48. Copyright 1983 by Electronic Learning.

Computer Activities Chart

	TOPICS	COMPUTER AWARENESS													PROGRAMMING											
		K	1	2	3	4	5	6	7	8	9	10	11	12	K	1	2	3	4	5	6	7	8	9	10	11	12
10th	Prediction, Interpretation, Generalization of Data											IA	C	C													
10th	Artificial Intelligence											IA	C	C													
10th	Pascal: Introduction																								IA	C	C
10th	Computer Systems												ID	C													
11th	Sampling Techniques												IA	C												IA	C
11th	Statistical Application												IA	C												IA	C
11th	Pilot: Programming																									IA	C
12th	Computer Survival													ID													
12th	Invasion of Privacy													ID													
12th	Pascal: Advanced																										IA
12th	Data Bases: Advanced																										IA

IA = Introduction with Activities ID = Introductory Discussion C = Expansion of Discussion from Previous Grades
R = Review M = Mastery

SOURCE: Dr. Gary Bitter, "The Road to Computer Literacy, Part V: Objectives and Activities for Grades 10-12," Electronic Learning 2 (February 1983): pp. 54-60. Copyright 1983 by Electronic Learning.

TITLE: Prediction, Interpretation and Generalization of Data

GRADE LEVEL: 10-12

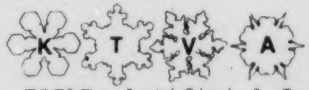
CURRICULUM AREA(S): All

The student can write programs to collect and organize data and interpret, predict or generalize the output.

As a class, write a program to survey students on what radio stations they listen to, their favorite musician/author/color, or their favorite subject in school. Have students take turns entering their opinions. Include a graph of the results as final output.

Discuss how national elections are predicted by polls such as Gallup and Harris. How accurate are these polls? Have groups of students conduct computer polls to predict the outcome of the class election, a school board election or a millage vote. Compare each group's results and determine the range of accuracy after the election.

Write a computer program to graph the population in your city, school and state for the last 50 years. (Census information should be available at the city, county or state office of statistics.) From this graph, generalize about the population next year, ten years from now and 50 years from now.



TITLE: Artificial Intelligence

GRADE LEVEL: 10-12

CURRICULUM AREA(S): Computer Instruction, Literature, Science, Social Studies

The student can define artificial intelligence and discuss its impact on the future.

Review literature on the history of artificial intelligence. (Articles have recently appeared in "Business Week," "Science Digest," "Creative Computing," and "Scientific American.") Discuss implications for the 80s, 90s and the next century.

Assign a book about artificial intelligence. (Suggested titles: INTRODUCTION TO ARTIFICIAL INTELLIGENCE: CAN COMPUTERS THINK?, Boyd and Fraser 1978; MICRO MILLENNIUM, Viking Press 1980; THE THIRD WAVE, Morrow 1982)

Have students research Japanese projections that the fifth generation of computers will have artificial intelligence. (Articles on this topic have appeared recently in "Business Week," "Info World," "Computer World," "Time" and "Newsweek.")

Discuss improvements in computer chess programs in the last 20 years. Compare the capabilities of current chess programs and programs made in the 1970s. Explain that the new programs examine more alternatives to making chess moves and are much more extensive.

Have students prepare an essay on artificial intelligence. Suggested topics include the difference between artificial intelligence and cybernetics, do machines think? and how machines become intelligent.

SOURCE: Dr. Gary Bitter, "The Road to Computer Literacy, Part V: Objectives and Activities for Grades 10-12," Electronic Learning, 2 (February 1983): pp. 54-60. Copyright 1983 by Electronic Learning.

TITLE: Pascal: Introduction

GRADE LEVEL: 10-12

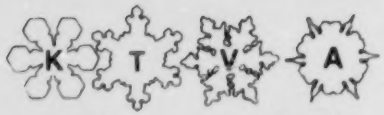
CURRICULUM AREA(S): Computer Instruction, Literature

The student can write simple Pascal Programs.

Discuss the general applications of Pascal and why it is called structured language.

Have students work with a Pascal Computer simulation program like "Karel the Robot" (Cybertronics International, Morristown, NJ; (415) 566-4566 to get familiar with Pascal.

Have students convert some of their BASIC programs into Pascal. Discuss the differences of each language.



TITLE: Computer Systems

GRADE LEVEL: 10-12

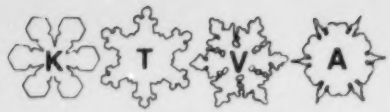
CURRICULUM AREA(S): Computer Instruction

The student is familiar with brands and types of computer systems.

Have students collect brochures from major computer companies amd make a comparative listing of the systems. Include type of computer (micro, mini, mainframe, pre-programmed learning aids, etc.), cost, purpose, speed, peripherals, memory and other functions. Summarize the advantages and disadvantages of each. Discuss the components that make up a computer system.

Have a computer sales representative give a speech on a computer system.

Have students create a model of a system and label all the parts. Have them draw a system of the future and write a paper on how it works, added features, what it is used for, how much it costs, etc.



TITLE: Sampling Techniques

GRADE LEVEL: 10-12

CURRICULUM AREA(S): Computer Instruction, Math, Science, Social Studies, Statistics

The student can set up a sampling technique for making decisions or predictions.

If possible, have a representative from a poll service or a statistician lead a discussion panel with your class on sampling techniques. Discussion topics could include ways of gathering data, where polls are conducted and why, factors to consider when compiling data.

Have small groups gather information and write a report on the factors involved in picking samples to predict election outcomes. Include party affiliation, regional influence, occupation, sex, ethnic background, and past voting history. Relate these to writing a computer program which analyzes this data.

List the professions which depend heavily on sampling: insurance, sales, television, politics, etc. Discuss what influence survey results have on each of these.

SOURCE: Dr. Gary Bitter, "The Road to Computer Literacy, Part V: Objectives and Activities for Grades 10-12," Electronic Learning, 2 (February 1983): pp. 54-60. Copyright 1983 by Electronic Learning.

TITLE: Statistical Application

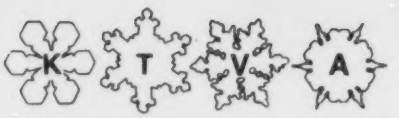
GRADE LEVEL: 10-12

CURRICULUM AREA(S): All

The student can use the computer to do statistical computation.

Have students use a commercial statistical package to compute mean, standard deviation and related statistics of several class tests. Have students write a program to compute the mean and standard deviation of their own tests.

Have a sales representative demonstrate statistical software to show its many capabilities. Discuss advantages of mainframes, mini and microcomputers for doing statistical computations.



TITLE: "Pilot" Programming

GRADE LEVEL: 10-12

CURRICULUM AREA(S): Computer Instruction, All

The student can develop programs using PILOT.

Have students write a detailed multiple choice test for a subject of their choice using PILOT. Include a post-test and a printout of final score, percentage of correct answers, and mean score of several tests.

Have small groups write a PILOT program with graphics. Have them share the programs with other classes.

Discuss the features of PILOT and compare it to BASIC and Pascal.

As a final project, have students prepare a multiple choice testing program in PILOT for another teacher to use in class. Require that the program use graphics (charts or diagrams), compute scores and compile statistical information about the class results.

SOURCE: Dr. Gary Bitter, "The Road to Computer Literacy, Part V: Objectives and Activities for Grades 10-12," Electronic Learning, 2 (February 1983): pp. 54-60. Copyright 1983 by Electronic Learning.

TITLE: Computer Survival

GRADE LEVEL: 10-12

CURRICULUM AREA(S): All

The student is aware of the future impact of computers on society.

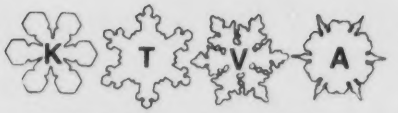
Have students review studies indicating the future role of computers on our society. Have them write a report on their findings. Issues to look for include the social impact, impact on trade unions, employment and government predictions on jobs.

Have students read at least one futuristic novel about technology. Suggested titles are Brave New World (Huxley), Future Shock and The Third Wave (Toffler), 1984 (Orwell), and Ray Bradbury fiction. Discuss the similarities and differences between fictional accounts of computers and scientific fact. Hold a debate on this topic.

Discuss preparations for making people computer literate (teaching the role of computers, what computers can do and cannot do, computer applications, and communications).

Compare the role of computers in various professions both now and in the future. Make a table listing education, politics, business and other professions on one side, and "past", "present" and "future" across the top. Have the class fill in the table.

Have each student write a paper on their future plans for living with computers.



TITLE: Invasion of Privacy

GRADE LEVEL: 10-12

CURRICULUM AREA(S): Computer Instruction, Social Studies

The student can explain what kind of information computer files contain and what laws protect that information.

Have students list all the data banks that store information about themselves. Discuss security measures for keeping this information private.

Visit a credit bureau and have someone explain what information is on the bureau's computer, its purpose, methods of security, changes to be made if there are errors and how individuals can access their file.

List all the government data banks you can think of and the purpose of each. Refer to a directory of federal institutions for more listings. Include lists of the types of information on each.

SOURCE: Dr. Gary Bitter, "The Road to Computer Literacy, Part V: Objectives and Activities for Grades 10-12," Electronic Learning, 2 (February 1983): pp. 54-60. Copyright 1983 by Electronic Learning.

TITLE: Pascal: Advanced

GRADE LEVEL: 10-12

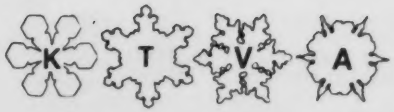
CURRICULUM AREA(S): Computer Instruction, All

The student can write a Pascal program to solve problems.

Have students list all the Pascal statements and compare them to BASIC statements.

Write an advanced program for math, physics, chemistry, geology, social studies or other classes in each language. Discuss advantages and disadvantages of each.

Have students read a self-study Pascal text such as "Apple Pascal" (McGraw-Hill 1981) and "Speaking Pascal" (Hayden 1981).



TITLE: Programming Data Bases: Advanced

GRADE LEVEL: 10-12

CURRICULUM AREA(S): All

The student can outline the procedure to prepare, access and update a data base.

Have a travel agent, businessperson or bank teller who works with data bases talk to the class on requirements of a data base. Include preparation, security, access, updating, etc.

Have the class prepare a data base of information on each student: name, social security number, sex, age, class schedule, etc.

Have the class design a security system for the data base they developed for the class.

SOURCE: Dr. Gary G. Bitter, "The Road to Computer Literacy, Part V: Objectives and Activities for Grades 10-12," Electrnoic Learning, 2 (February 1983): pp. 54-60. Copyright 1983 by Electronic Learning.

TITLE: Flow Charting Addition, Subtraction and Division

GRADE LEVEL: 7-12

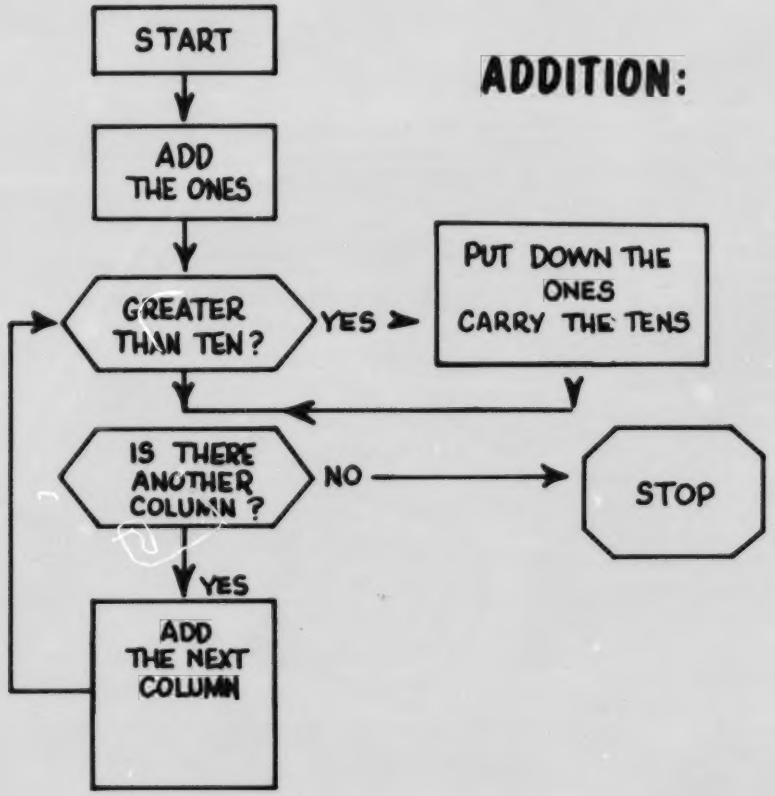
CURRICULUM AREA(S): Math

Students who need survival skill instruction in mathematics usually require concrete, highly sequenced instruction. Mathematical learning is hierarchical in nature, each new concept and/or function relying upon mastery of previous functions. Students who have fallen behind in math report that they are merely moving numbers on paper without really understanding the processes. Concrete materials are necessary with many students -- pictures and visualizations simply do not work. Although there are numerous commercial objects available, any small objects will do. Toothpicks are good manipulables for whole number operations since they can easily be bundled for place value study.

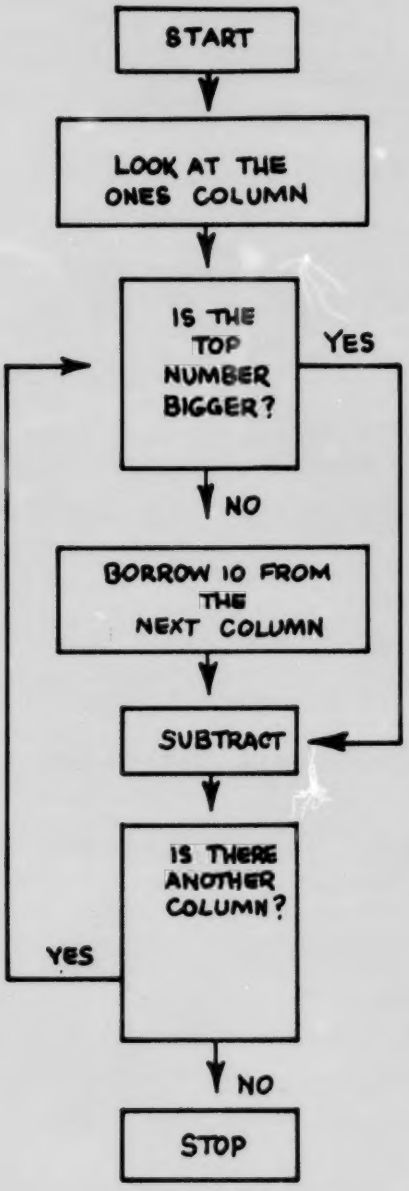
Many students make errors because they do not follow the correct sequence in working problems.

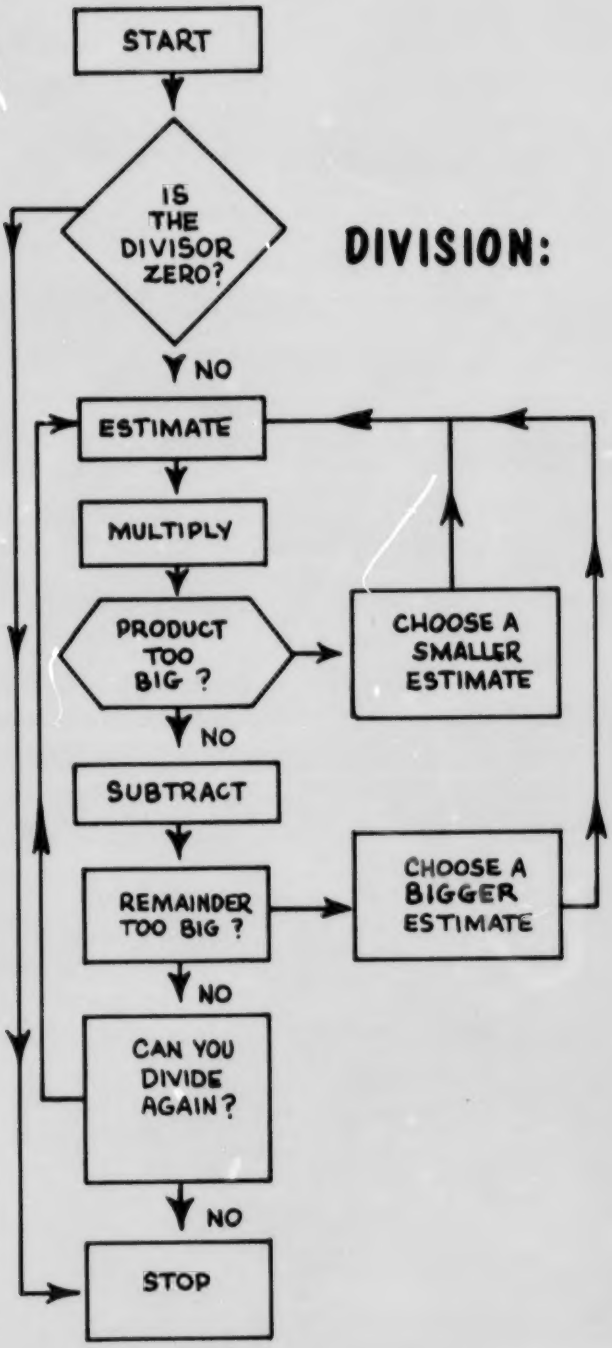
SOURCE: Exceptions: A Handbook for Teachers of Mainstreamed Students. Cushing, OK; Child Service Development Center and Developer, 1981.

Flowcharts are especially helpful for these students. The student learns to follow the flowchart as each step is performed. Soon the need for the flowchart no longer exists. Sample flowcharts for addition, subtraction and division follow. These may be made simpler for students requiring that adjustment. Other flowcharts can be made for fractions, measurement, etc.



SUBTRACTION:




START
IS THE DIVISOR ZERO?
NO
ESTIMATE
MULTIPLY
PRODUCT TOO BIG ?
CHOOSE A SMALLER ESTIMATE
NO
SUBTRACT
REMAINDER TOO BIG ?
CHOOSE A BIGGER ESTIMATE
NO
CAN YOU DIVIDE AGAIN?
NO
STOP

DIVISION:

K

Activities

TITLE: Jumping Brooks

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Physical Education

Equipment: Two short ropes per 4 players. Place each set of ropes so that the two ropes in each set are parallel and various distances apart, as shown in illustration. The distance will vary according to grade levels. Each set represents a brook, some are wider than others. Ask the students to start at a brook they think they can run and jump over and then progress as they are successful to wider brooks. If they get their feet "wet", they simply dry them and try again.

Suggestions: Discuss such things as watching for others and sharing turns. Place the brooks approximately 15 feet away from each other so that there will be plenty of room in which to run. Encourage jumping from one foot and landing on two feet. The use of ropes was only a suggestion; anything that can be easily seen and is safe may be substituted. Many classes use cord or newspaper rolled into the shape of a short rope. The jumping distances will vary. Adjust them so that every student can progress, and yet the most highly skilled are challenged.

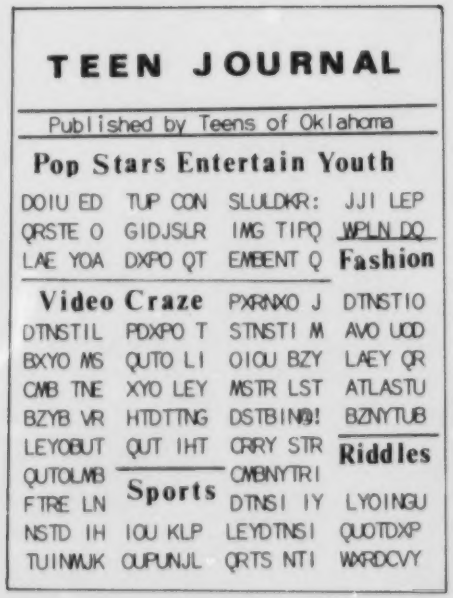
SOURCE: A Lifetime Experience, Physical Education, K-12, OK: State Department of Education, 1981.

TITLE: Riddles in the News

GRADE LEVEL: 7-12

CURRICULUM AREA(S): All

Students create riddles about people, places and events mentioned in the weekly newspapers. Riddles are mounted on construction paper with an answer flap below. Feature riddles on a "Riddles in the News" bulletin board for all students to share.



TEEN JOURNAL

Published by Teens of Oklahoma

Pop Stars Entertain Youth

DOIU ED TUP CON SLULDKR: JJI LEP
QRSTE O GIDJSLR IMG TIPQ WPLN DQ
LAE YOA DXPO QT EMBENT Q **Fashion**

Video Craze PXRNXO J DTNSTIO
DTNSTIL PDXPO T STNSTI M AVO UOD
BXYO MS QUTO LI OIOU BZY LAEY QR
OMB TNE XYO LEY MSTR LST ATLASTU
BZYB VR HTDTTNG DSTBINW! BZNYTUB
LEYOBUT QUT IHT ORRY STR **Riddles**
QUTOLMB **Sports** OMBNYTRI
FTRE LN DTNSI IY LYOINGU
NSTD IH IOU KLP LEYDTNSI QUOTDXP
TUINMJK OUPUNJL QRTS NTI WXRDCVY

SOURCE: Touching, Living, Growing. . .Elementary Social Studies, OK: State Department of Education, 1981.

TITLE: Rewriting the News

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Language Arts

Go through the students' copies of the weekly newspaper and cut out the end of an article. Have the students write their own ending to the article and then compare it with the original.

SOURCE: Touching, Living, Growing. . .Elementary Social Studies, OK: State Deparmtent of Education, 1981.

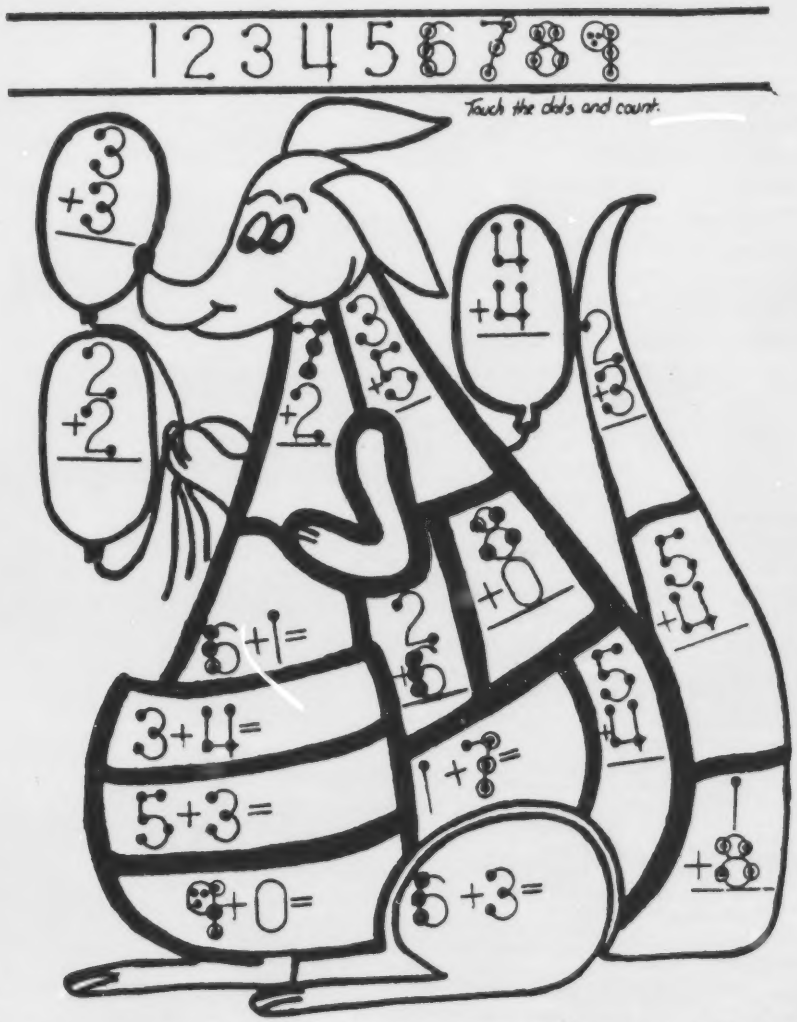
TITLE: Adding by Touch Math Method

GRADE LEVEL: 7-8

CURRICULUM AREA(S): Math

This activity is designed for two purposes:

1. It will help you teach the children the "touch points" on each number.
2. It will help teach beginning addition by having the children touch each "touch point" and count.



SOURCE: Touch Math, Box 7402 Colorado Springs, Colorado 80933 (303) 599-3381, 1981. [All Touch Math materials are available for use only by persons having attended a Touch Math Inservice by certified Touch Math instructors.]

K, T

Activities

T-K

TITLE: Measurement

GRADE LEVEL: 9-10

CURRICULUM AREA(S): Math

Guess in English (inches)

1. width of hand
2. width of thumbnail
3. length of arm
4. length of foot
5. length of little finger
6. length of ear
7. length of nose

English measure (inches) using fractions.

Use 1 through 7 listed above and compare; then guess

8. width of shoulders
9. longest hair
10. around waist

After formal presentation of metric system (centimeters), measure using decimals objects in the room:

floor tile, textbook, cupboard door, counter length, own height, railing, block, etc.

SOURCE: Jocelyn Markley, Ardmore High School

T-K

TITLE: Estimating and Measuring Volumes

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Math, Science

Have students bring various containers [cans, bottles, boxes, etc.]

Remove or cover all labels that state the volume of each container.

Let students estimate how much liquid or solid each container will hold.

Record these estimates.

Then have students calculate the actual volume by using appropriate mathematical formulas and by using standard measures of sand or water to fill each container.

Record volume obtained by each of these methods.

Compare with recorded estimates.

Have students calculate percentage of difference.

SOURCE: A Product of Our Times, OK: State Department of Education, 1981.

T-K

TITLE: Thermal Energy Storage

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Science

Put soil in one container and water in the other. Tape thermometers to a straw so that two bulbs are just 1 cm above each surface and the other two are 1 cm under each surface. The heat source should be 30 to 40 cm above the surface of the water and soil so that the two surfaces receive equal heat.

Turn heat on for 10 minutes, then turn off for 10 minutes. Record the temperature at the two-minute intervals.

Graph the results--both heating and cooling. Compare results.

SOURCE: Outdoor Education, OK: State Department of Education, 1981.

T-K

TITLE: Constructing a Contour Map

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Science, Social Studies

A simple model of a mountain can easily be made by fashioning a thin layer of plasticine modeling clay over a supporting wad of newspaper. A more permanent model can be made by using plaster of paris instead of plasticine. The model should be made to fit within the limits of a plastic dish pan.

1. With a felt tipped marker or the black grease pencil, mark a depth scale (2 cm intervals) on the inside wall of the dish pan.
2. Put the model in the pan and add water to a depth of 2 cm. (It may be necessary to color the water so that you can see it better.
3. Place the sheet of Plexiglass over the top of the dish pan and carefully trace the "shoreline" where the water contacts the mountain.
4. Remove the Plexiglass and add another 2 cm of water.
5. Repeat Step 4. Continue this procedure until the mountain has been covered by water and your contour map of the mountain is complete.

SOURCE: Outdoor Education, OK: State Department of Education, 1981.

T-K

TITLE: World Trade Map

GRADE LEVEL: 9-12

CURRICULUM AREA(S): Economics, Foreign Language, Social Studies

The blank map on the next page has been reproduced to illustrate Oklahoma's connection to world trade. No specific facts or figures have been provided because they would become outdated so quickly. The Oklahoma Department of Economic Development, P.O. Box 53424, State Capitol Station, Oklahoma City, OK 73152 [405/521-2401] (street address: 4024 N. Lincoln Blvd., Oklahoma City, OK 73105) can provide curent data to use with the poster -- amount of dollars, number of companies dealing in foreign trade, products involved.

SOURCE: Foreign Language Post: Impact of Public Relations Realized, OK: State Department of Education, 1981.

You may prefer to add your own slogan ("Oklahoma Trade with the World") and an illustration of a product--drilling equipment, computer components, airplanes, etc. We felt the blank map would be of greater use in the classroom.

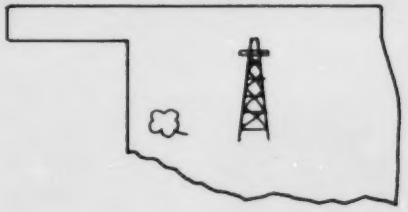
T-K

TITLE: Natural Resources Map

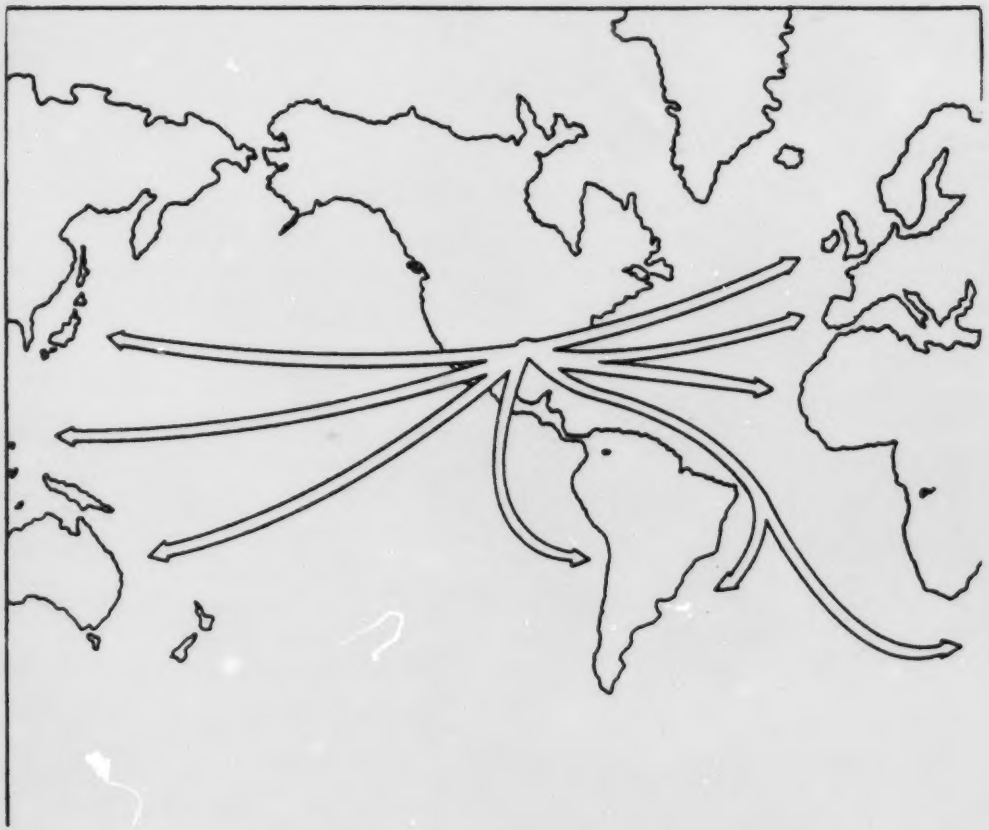
GRADE LEVEL: 7-9

CURRICULUM AREA(S): Art, Social Studies

Students will research the natural resources of Oklahoma. The class will then construct on the bulletin board a large map of Oklahoma showing the Location of Oklahoma's natural resources. The map will include a list of products made from these resources and any other uses of the resources.



SOURCE: Classroom Learning Activities for Social Studies (CLASS), OK: State Department of Education, 1982.



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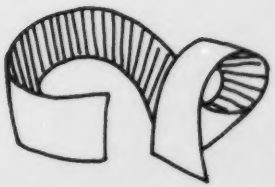


T-K

TITLE: The Moeibus Strip

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Math

Cut strips of paper 3 inches wide and 14 to 50 inches long.

Prepare enough strips so that each student will have 4 to 5 strips.

Have each student pick up the ends of one strip in opposite hands. The left hand should be kept steady, and the right hand used to provide 0, 1, 2 or 3 half-twists.

The student should make one of each type by taping or stapling the ends together.

The strip with one half-twist will look like the example.

Allow students to work with partners or in small groups to complete a chart.

In this chart, students should note characteristics like the number of pieces after each cut, the number of sides to those pieces, the relationship between the number of half-twist to the number of sides, etc.

SOURCE: A Product of Our Times, OK: State Department of Education, 1981.

T-K

TITLE: Design a "Car-Free Model City

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Science, Social Studies

Divide the class into six groups.

Instruct members of each group to imagine that they are city planners and scientists.

Consider new modes of clean, efficient transportation for a "no-car, no-truck" city. Decide beforehand if busses with gasoline engines will be allowed.

Each group will draw its model city to share with the class. Show the source of energy for its city (nuclear, ocean tides, solar, geothermal, imaginary).

SOURCE: Outdoor Education, OK: State Department of Education, 1981.

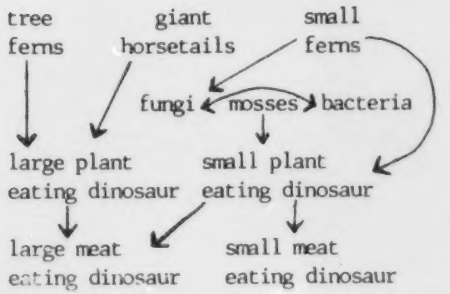
T-K

TITLE: Past and Present Food Webs

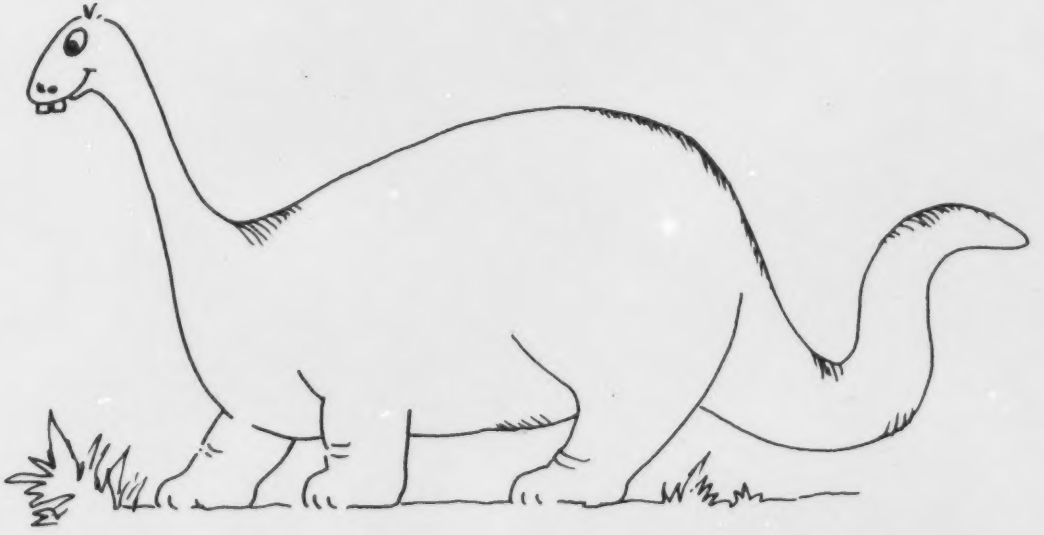
GRADE LEVEL: 8-12

CURRICULUM AREA(S): Health, Science

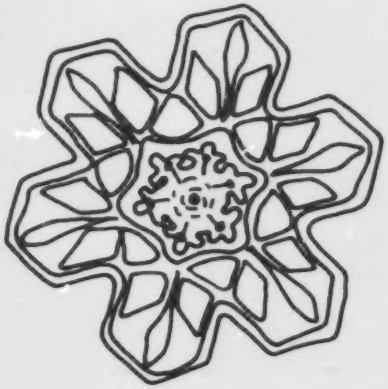
Present students with the following components of a prehistoric ecosystem: tree ferns, giant horsetails, small ferns, mosses, small plant-eating dinosaur, large meat-eating dinosaur, fungi and bacteria. Have the students construct a food web using these plants and animals. Students may want to cut out or draw pictures of these organisms and make a pictorial food web on a poster or bulletin board. The food web may resemble the following:



Ask which organisms are still present today, which have changed and which have disappeared completely. Have students name organisms present today which have the same ecological roles as each component of the prehistoric food web. Construct a food web using these modern organisms. Compare corresponding components of the two food webs. Are the food webs more different than similar? What is the energy source for each?



SOURCE: Outdoor Education, OK: State Department of Education, 1981.



K, T, V/K,V

Activities

TITLE: Leaf Printing

GRADE LEVEL: 7-10

CURRICULUM AREA(S): Art, Science

Cover area with old newspapers. Collect leaves and lay on table vein side up. Poor small amounts of ink onto flat surface. Roll leaves with ink. Turn leaves over and place vein side down on surface desired to be printed. Cover with a clean sheet of paper and again roll over the leaves. Remove paper and leaves.

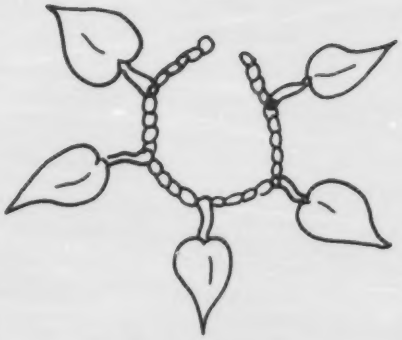
Veins, texture, lobes, stem position, and leaf shape can be printed to look like scarves.

Make place mats or pictures.

Leaves arranged in a circle of 5 can be made to resemble flowers.

Make leaf collages.

SOURCE: Outdoor Education, OK: State Department of Education, 1981.



TITLE: Addition - Adding a Ragged Column of Whole Numbers

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Math

Present this method of partial sums to students who still have difficulty with adding "ragged columns" of whole numbers. For example:

```
3425
5917
 231
  82
 ---
  15  -  unit sum
  14  -  tens sum
 15   -  hundreds sum
 8    -  thousands sum
 ---
9655  -  final sum
```

Proof that the addition is correct may be solved in the following fashion by adding horizontal and vertical entries and the horizontal sum.

Example:

```
3+4+2+5 =  14     (1+4) = 5
5+9+1+7 =  22     (2+2) = 4
  2+3+1 =   6            6
    8+2 =  10           10
9+6+5+5 =  25           25
```

SOURCE: A Product of Our Times, OK: State Department of Education, 1981.

TITLE: Newswriting

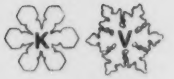
GRADE LEVEL: 9-12

CURRICULUM AREA(S): Journalism, Language Arts

Cut apart metro newspaper stories by paragraphs and scramble; give to students to arrange in appropriate order.

Give students random reporter notes on local happenings to rearrange and write news stories.

SOURCE: A Journalism Update - for the Teacher/Advisor, OK: State Department of Education, 1982.



TITLE: Spelling Syllabus

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Spelling

No rules can guarantee the correct spelling of a word never seen in print. Spelling ability correlates highly with word perception. If it is felt that rules are needed, choose specific rules which will help the students with problem words.

Poor spellers need to learn how to study a word for its spelling by means of a visual/kinesthetic approach. Spelling deals with sound-to-symbol relationships - just the reverse of reading.

More important than the rules for spelling are the basic rules for learning to spell words that have been misspelled in the pretest. The following is a set of learning rules:

1. Look at the new word. Say it.
2. Close your eyes. Think what the word looks like. Say the word. Spell the word aloud.
3. Open your eyes. Look at the word again. Were you right? If you made a mistake, go back and do step 1 and step 2 again.
4. Cover the word. Write the word. Did you spell it right? If you made a mistake, go back and do step 1 and step 2 again.
5. Cover the word you just wrote. Write it again.

A shortened form of the above rules follows:

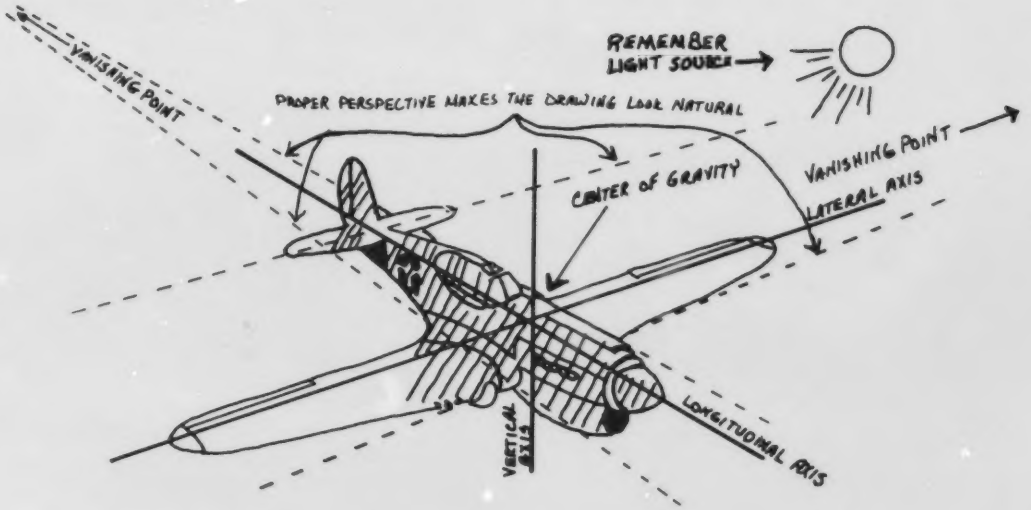
1. Look and say.
2. Close your eyes. Think, say, spell.
3. Check. (If you made a mistake, start over.)
4. Cover and write. Check. (If you make a mistake, start over.)
5. Repeat step 4.

TITLE: Sketching an Aircraft

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Art, Drafting, Science

1. Determine the lateral axis, vertical axis and longitudinal axis as illustrated. The center of gravity being the central point of these three axis.
2. Determine the vanishing points of the body section and the wing section as illustrated.
3. Build the aircraft around the center of gravity and the three axis of rotation when they are determined and lightly drawn.
4. Follow steps one through four of illustration for proper completion of the aircraft sketch.
5. Finish the drawing by shading the side away from the source of light. This adds a more realistic effect to the finished drawing.



SOURCE: High Flight - Aerospace Activities, K-12, OK: State Department of Education, 1982.

K, V, A

Activities

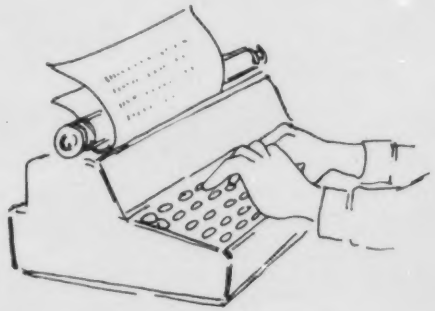
TITLE: Composing at the Typewriter "Describe It"

GRADE LEVEL: 10-12

CURRICULUM AREA(S): Typewriting

To further develop the ability to compose at the typewriter, give topics such as describing a bedroom, closet, person, place or specific thing. Sometime you might give each student a secret topic to describe. After typing for about one minute, depending on the topic, read the description orally to the class. (This gives a chance to see how well each student is composing--typographical errors, complete sentences, etc.). In the case of a secret topic, let the class guess who or what the person was describing. This develops the ability to compose and to be as accurate as possible with a description, because the important thing is for the class to know immediately who or what is being described. Sometimes give extra credit to the student who guesses who or what is being described, as this encourages listening and understanding. Usually allow one minute on any of these topics, and most of the time read them orally. This is fun and it is a learning situation.

SOURCE: Book of Ideas in Business Education, OK: State Department of Education, 1982.



TITLE: Study of Different Countries/Cultures

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Arts, Modern Dance, Social Studies

Students will choreograph a "universal" dance characteristic of many nations and cultures after research.

Discuss the United Nations and the Olympics, composites of many adverse nations, yet each has its own flag and symbol.

Transfer this concept to dance; there is no universal dance. Continue discussion of various cultures and the characteristics of their dance styles. Using a chart, outline or other organizational plan to record research findings, students will gather factual descriptions of dance styles, costumes, music, etc., of various cultures including their own.

The students will, individually, within small groups or as a whole class, design and choreograph a "universal" dance, characteristic of the many cultures. Plan the type of costume that would be representative of the universal dance along with type/s of musical instruments to be played.

SOURCE: The Pebble Book. Division of Academic Programs, Department of Public Instruction, Louisiana, p. 86, n.d.

TITLE: The Economic System

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Economics

Define the term economics.

Discuss systems of production in communism, socialism and capitalism.

Examine activities such as producing, saving, spending, paying taxes, etc.

Relate "man stranded on an island concept."

The three basic decisions of economic systems are: how much, what and for whom. Have students research the three decisions as related to (1) tradition and custom, (2) command, and (3) market economy. Use the energy crisis as an example. Discuss conservation measures designed to ward off other kinds of crises.

Have students list five ways in which supply and demand effect the consumer.

Have students write a theme or essay on the topic, "My Responsibility to Conserve" or other selected topics.

Discuss economic goals such as stable prices, high wages, return on investment, free trade, freedom from government restriction, consumption, technology, competition, etc.

List ten items you have purchased or received recently, and categorize into wants and needs. Be able to justify the items as needs.

Present a problem to the group to solve choosing between two desirable or necessary expenditures when only one is possible. Follow up with discussion and questions until the steps in making such a choice can be clearly outlined.

Prepare a chart or other visual aid which depicts choice.

Have students read, "The American Economic System . . . And Your Part In It."

Discuss situations wherein the individuals are required to make economic choices (i.e., work for wages, operate own business, decide how individuals spend money, and whether to buy on credit or save to purchase).

SOURCE: Consumer Education, K-12, OK: State Department of Education, 1981.

K, A

Activities

TITLE: Interviewing

GRADE LEVEL: 9-12

CURRICULUM AREA(S): Journalism, Language Arts, Speech, Career Education, Vocational

Each person in the class draws a number from a container. Persons with odd numbers stand in front of the class and select a person with whom they are not close friends from the even-numbered class members. The teacher will need to supervise selection to make sure "best buddies" are separated.) The paired students will switch roles, taking turns interviewing to discover feature story material about one another. These could be particular characteristics, hobbies or experiences. Students are required to take notes and write the story for class the next day. The teacher may want to read the stories to the class so that the students find out something interesting about each person involved.

SORUCE: A Journalism Up-Date: for the Teacher/Advisor, OK: State Department of Education, 1982.

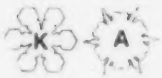
TITLE: Roving Reporter

GRADE LEVEL: 7-12

CURRICULUM AREA(S): Journalism, Language Arts, Speech, Social Studies

Provide a microphone for students to simulate a newscast featuring events from the weekly newspaper. Students may create illustrations for each article, tape the newscast and present to another class.

SOURCE: Touching, Living, Growing. . .Elementary Social Studies, OK: State Department of Education, 1981.



TITLE: Hearing and Marking Accents

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Literature, Modern Dance

This activity is designed to help students hear, feel and mark accents in words and dance movement.

Have students listen to a simple sentence spoken in a monotone [e.g., I like to dance.] Then say the sentence making one of the words stronger, louder or sharper. Then say and mark syllables of a word/s like "pepperoni pizza." Try a variety of ways to show accent by using a change of direction, level or body part. Then a drum could be used to accompany a list of vocabulary words asking the students to continue moving and make a change in direction, level or force in action on the accented syllable.

For further extension of this idea/activity and many others using dance/movement to illustrate concepts in basic subjects see the Source book.

SOURCE: Connections: Linking the Arts & the Basic Curriculum, OK: State Dept. of Education, 1980.

V

Activities

TITLE: Stable vs. Unstable Air

GRADE LEVEL: 7-10

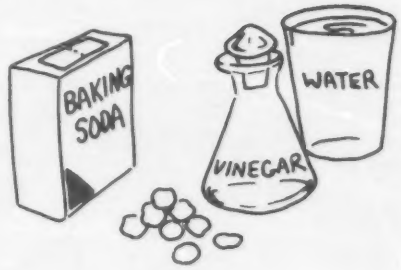
CURRICULUM AREA(S): Science

Shake about one-half teaspoon of baking soda into a glass 2/3 full of water and stir until dissolved. Drop four mothballs into the glass. Obviously each mothball sinks to the bottom. Now add a little vinegar to the glass. The mothballs being to rise. Some may remain suspended in the water for a while, but eventually all will reach the top, fall back to the bottom of the glass, and in due time, bob up again.

The vinegar and soda interact to form carbon dioxide. When bubbles of the gas attach themselves to the mothball, the mothball becomes a little bigger and lighter than before--in other words, less dense. To remain suspended in the water, the density of the bubble--enlarged mothball, must equal the density of the water. Eventually, when the mothball acquires enough bubbles and is lighter than the water, the mothball will rise to the top.

SOURCE: Outdocr Education, OK: State Department of Education, 1981.

Parcels of air in the troposphere act very much like these mothballs, sometimes staying put, sometimes rising, sometimes sinking, depending on how the density of the parcel compares to the density of the surrounding air.



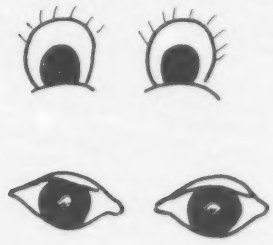
TITLE: Seeing Poems

GRADE LEVEL: 7-10

CURRICULUM AREA(S): Literature

You will need several books of poetry.

The students read and find several poems that would fit into a figurative shape that the poem tells about. Then they create their own "Seeing Poem."



SOURCE: Reading Sampler, OK State Department of Education, 1980.

TITLE: Secret Messages

GRADE LEVEL: 7-8

CURRICULUM AREA(S): Math

Distribute a copy of each worksheet to students.

Instruct students to match the answer to the mathematical problem with the key printed at the top of the page to find the secret message.

SECRET MESSAGE

A	B	C	D	E	F	G	H	I	J	K	L	M
1	3	5	7	9	11	13	15	17	19	21	23	25

N	O	P	Q	R	S	T	U	V	W	X	Y	Z
2	4	6	8	10	12	14	16	18	20	22	24	26

20+3	8+9	9-7	4+3	2+1	6+3	5+5	7+6	7+8	
20+5	8-7	2+5	7+2	7+7	9+6	18-9			
6+5	9+8	6+4	7+5	6+8	6+6	8-4	21+2	2+2	
6-4	7-3	1+1	9+3	5+9	9-5	10-4			
9+2	21+2	10+7	5+8	8+7	8+6				
7-6	3+2	7+3	9-5	4+8	5+7	7+7	9+6	18-9	
9-8	6+8	20+3	13-12	18-16	5+9	9+8	8-3		
8-4	10-5	3+6	8-7	2+0	7+4	2+8	-1	20+5	
10-8	8+1	10+10	20+4	10-6	9+1	20+1	9+5	8-4	
3+3	16-15	8+2	8+9	8+4					

SOURCE: High Flight - Aerospace Activities, K-12, OK: State Department of Education, 1982.

TITLE: Body Language

GRADE LEVEL: 9-12

CURRICULUM AREA(S): Speech

Ask students to examine the interactions between members of their family, their friends or even strangers. Tell them to pay as little attention as possible to verbal interaction and to note instead proximity, posture, gesture, facial expression, eye contact, relative position and nonlinguistic verbal cues. Have students answer the following questions in a one-page paper: Are you able to interpret the body language? Does this nonverbal communication conflict with what people communicate verbally? What happens if you reply verbally to nonverbal messages?

SOURCE: Classroom Learning Activities for Social Studies (CLASS), OK: State Department of Education, 1982.

TITLE: Understanding Scope and Sequence of Battles During the Civil War

GRADE LEVEL: 9-12

CURRICULUM AREA(S): Social Studies

Materials needed: toy soldiers, wagons, horses, etc. (can be made from paper), maps from battles in text.

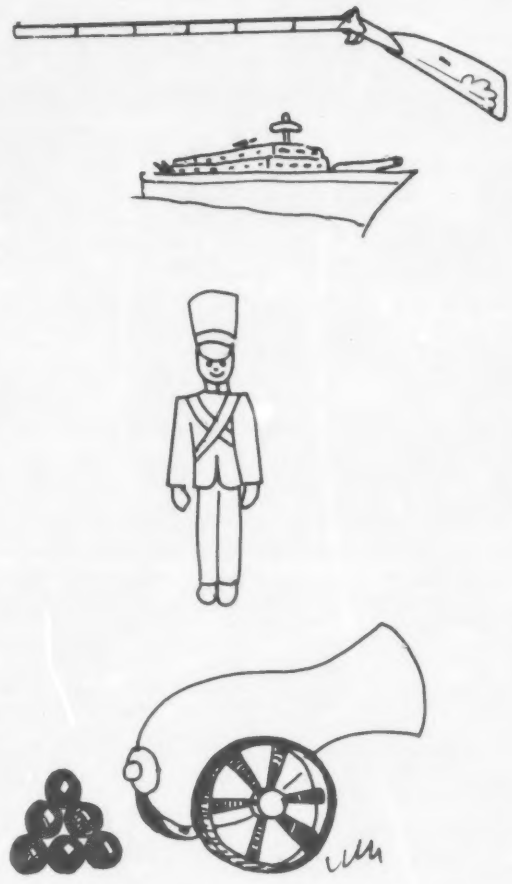
Have students select a battle. Locate a map and enlarge to desk top size.

Have students sequence events preceding battle and actual movement and strategies and the outcome.

Allow students to place battles on their own U.S. map with time (date indicated) and winner.

What were the ramifications of this battle; to the people, to the North soldiers, to the South soldiers and to the total war?

SOURCE: Jacque Allen, RESC, Anadarko, OK.



TITLE: Dateline USA

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Social Studies

Have a United States map (or world map) on the bulletin board. Ask your students to bring newspaper stories to share after they have found the location of the dateline and have marked it with a push pin.

Have a follow-up discussion of the news item concerning where the event occurred and how it might affect us.

SOURCE: Classroom Learning Activities for Social Studies (CLASS), OK: State Department of Education, 1982.

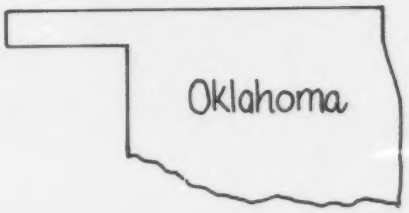
TITLE: Can You Label the States or Can You Label the Capitols

GRADE LEVEL: 7-10

CURRICULUM AREA(S): Social Studies

Use a large outline map of the United States, with the states outline. Place a small piece of two-sided tape in each state, or at the side of the smaller eastern states. Laminate states or capitals or abbreviations; labels listing all 50 to be placed on the tape. (Labels laminated on both sides will last longer, as well as the tape.)

Students can use this center individually or in a small group. Have a copy of the United States or list a page in the Social Studies book they can look on to check their work. Little individual charts can be kept by the student to see if progress is being made.



SOURCE: Scoops of Ideas, OK: State Department of Education, 1980.

TITLE: Guess What!

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Language Arts

To reinforce a story, poem or television program after a class discussion, write ten key words on the board. Using a stopwatch and pointing to each word at random, allow students to volunteer a sentence using the designated word. The sentence must respond to the story and a complete sentence. Two sentences per word (one minute) may be required.

SOURCE: A Wide Spectrum of Ideas, OK: State Department of Education, 1981.

TITLE: Know the Presidents

GRADE LEVEL: 7-11

CURRICULUM AREA(S): Social Studies

For this activity you will need a picture of each President.

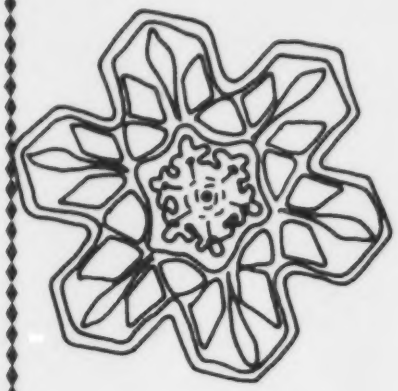
1) Write the name of each president below the picture with grease pen or removable substance.

2) Number the presidents in order with a colored pen (wax pencil or removable substance).

3) These can be used as repetitive practice - flash cards. The name or number can be removed dependent on data wanted.

4) Count down games can be played, cards can be grouped, put in order of term, etc.

SOURCE: Jacque Allen, RESC, Anadarko, Oklahoma.



V, A

Activities

V A

TITLE: Insect Study

GRADE LEVEL: 7-8

CURRICULUM AREA(S): Science

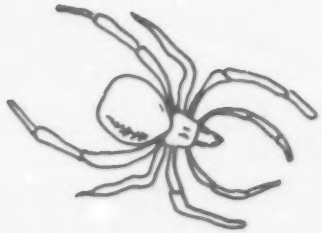
The unit of insect and spider study will be visual with some auditory direction.

The tasks and/or experiments that need to be seen are:

identifying insects

Using a magnifying glass or microscope to study different parts of insects and spiders

finding spider webs (organized visual research)



SOURCE: Katherine Winchester, Phillips University, Enid, Oklahoma.

V A

TITLE: Memorization

GRADE LEVEL: 7

CURRICULUM AREA(S): Social Studies

Visual clues for visual learners.

Arkansas Little Rock

Auditory clues.

Noah looked out of the Ark-and-saw a small rock.

Visual:

New York Albany

Auditory:

This state is like buying a new fork [rhymes] to eat all-the-bunny with.

These can be turned into games that would involve kinesthetic clues by asking children to play charades.

Students can be broken up into small teams and given four states to make clues about. Some of the states are easy and some are not. Try to assign some easy with the difficult.

SOURCE: Josie McClain, Sequoyah Middle School, Edmond, Oklahoma.

A

Activities

TITLE: Motivation Through Listening

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Language Arts, Music

Pick out the most popular records that are currently playing. Make a unit of listening skills that you want to reinforce. For example: contractions, vocabulary, initial consonants, listening comprehension, synonyms, antonyms, proper nouns, common nouns, vowel identification and rhyming words.

Crossword puzzles, hide-a-word, comprehension worksheet, listening comprehension, finding the missing vowels and alphabet practice.

Example 1 - Listen to the record "Keep on Lovin' You" and write down as many contractions as possible. On a worksheet, name the two words the contractions stand for and name the missing letters.

Should've	Should have	h,a
I'm	I am	a

Example 2 - Listen to "Devil Went Down to Georgia." A worksheet that has previously been reproduced has a list of words with only the consonants listed. The children listen to the record and put in the vowels.

G _ _ rg _ _ m _ _ n _ _ n
D _ v _ l f _ n g _ e t _ p s
l _ _ k i n g J _ h n n _

Example 3 - Listen to the record "Cryin'" by Dan McLean and have the students count the number of times they hear the word "cryin'". As each child finishes counting, she/he is to write the numeral representing the total. Using that numeral as the starting point for a drawing, she'he illustrates the main idea of the lyrics.

TITLE: What Is It?

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Music, P.E.

Ask student to close his/her eyes. Make familiar sounds and ask him/her to identify each one. Try the following sounds: knock on wood, clap your hands, crush a piece of paper, drop a pin. Later, let the student find a partner and practice additional sound identification on his/her own.

SOURCE: Reading Sampler, OK: State Department of Education, 1980.

A

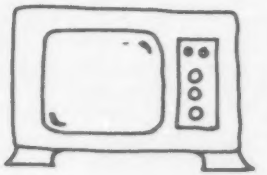
TITLE: Evening News

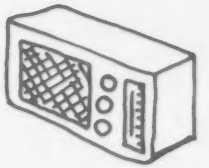
GRADE LEVEL: 7-10

CURRICULUM AREA(S): Language Arts, Speech, Social Studies

For this activity you will need a table, chairs and a make-believe microphone. Choose a time period in American history and have students broadcast one day's news. Assign roles of newscaster, sportscaster, weather forecaster and others. Plan the program to include timely commercials, then present the newscast to the class. Suggested events include the Boston Tea Party, the signing of the Constitution, the attack on Pearl Harbor, the Louisiana Purchase, the assassination of a nationally-important person and significant battles and treaties.

SOURCE: Classroom Learning Activities for Social Studies (CLASS), OK: State Department of Education, 1982.





A

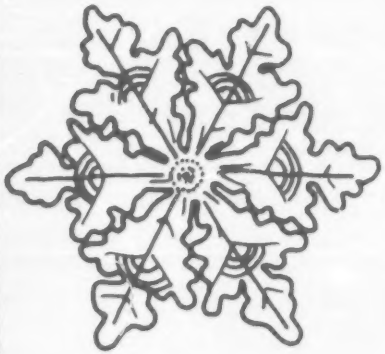
TITLE: Communication Helps to Solve Problems

GRADE LEVEL: 7-9

CURRICULUM AREA(S): Speech

Before class starts, construct a complex building with blocks. When students arrive, divide the class into groups of four or five. Ask each group to build a building exactly like the one you have made. Tell some groups that they may talk to each other while building, and tell other groups that they may not talk. After the groups have finished their duplicates of your building, talk with the children about the experience. What things helped them to do the job? Was it easier to work together in the groups that talked or the groups that were quiet? What things did they talk about that helped them construct the building? Why was it harder to work together without talking to each other?

SOURCE: Classroom Learning Activities for Social Studies (CLASS), OK: State Department of Education, 1982.



Inventories

Inventories

Barbe, Walter
Swassing, Raymond

Swassing-Barbe Modality Index
Instrument uses a matching-to-sample task. Testing measures modality strengths in the visual, auditory and kinesthetic areas. Zaner-Bloser, Inc., 612 North Park Street, Columbus, Ohio 43215.

Canfield, A. A.
Lafferty, J. C.

Learning Style Inventory
Self report instrument designed to develop instructional materials for whole class or individuals. For use with junior high through adults. Humanics Media, Liberty Drawer 7970, Ann Arbor, Michigan 48107.

Carbo, Marie

Reading Style Inventory
Multi-choice questionnaire that identifies individual reading style preferences. Grades 1-12. Learning Research Associates, P.O. Box 39, Roslyn Heights, NY 11577.

Dunn, Rita
Dunn, Kenneth
Price, Gary

Learning Style Inventory (!SI)
Self report instrument for grades 3-12. Designed to diagnose individual learning characteristics.

Productivity Environmental Preference Survey
Adult version of LSI. Contains 100 items. Price Systems, Inc., Lawrence, Kansas.

Fizzell, Robert

Schooling Styles Inventory
Examines factors related to success and failure relative to style of school. Western Illinois University, Malcomb, IL.

Golay, Keith

Learning Pattern Assessment
Designed to show that learning behavior depends on students' personality and classroom setting. California State University, Fullerton, CA.

Gregorc, Anthony

An Adult's Guide to Style
Inventory used to identify two crucial sets of learning qualities. Tells how a person orders information and where a person's sense of reality is anchored. Gabriel Systems, Inc., P.O. Box 357, Maynard, MA 01754.

Hill, Joseph	Cognitive Style Inventory Self report instrument describing a person's style in process, assimilation and decision making. Elementary through adult levels. White Bear, MN.
Hunt, David	Teacher Assessment of Student Learning Style Test is based on students' reactions to specific teaching stimuli. Examines the conceptual level of development. Paragraph Completion Method (PCM) Examines student's conceptual level. Grades 6 through adult. Toronto, Ontario, Canada, M5S 1V6.
Kolb, David	Learning Style Inventory Self report instrument pulls on hereditary abilities and past experiences. Four basic learning modes are identified. Young adults. McBer and Company, Boston, MA.
McCarthy, Bernice	4MAT System: Teaching to Learning Styles with Right/Left Mode Techniques Inventory related to work of Paul Torrance, Anthony Gregorc, David Kolb and others. Excel, Inc., 600 Enterprise Drive, Suite 101, Oak Brook, IL 60521.
Mills, R. E.	Learning Methods Test Test designed to assess learning strengths and combinations of strengths in grades K-3. Children are taught through three reading methods. Ft. Lauderdale, FL.
Papalia, Anthony	Learning Modalities Inventory Inventory to be used by teachers to observe classroom behavior in seven different areas. Buffalo City, NY.
Perrin, Janet	Learning Styles Inventory - Primary Version Questionnaire for children K-12. Learning Styles Network. St. John's University, Grand Central Parkway, Jamaica, NY 11439.
Ramirez, Manuel Castaneda, Alfred	Child Rating Form Direct checklist yielding frequency of behavior scales. Designed to recognize cultural differences. Academic Press, New York City, NY.

Ray, Darrel

Ray Reading Methods Test

Test designed to evaluate preferred learning method(s) of children in process of learning to read. Measures responses to teaching-learning experiences using four reading methods. Oklahoma State University, Stillwater, OK.

Renzulli, Joseph

The Learning Styles Inventory: A Measure of Student Preference for Instructional Techniques

Test designed to assist teachers in individualizing instruction. Upper elementary and junior high. Unviersity of Connecticut, Storrs, CT.

Schmeck, Ronald

Inventory of Learning Process

True-false, self report inventory measuring information processing. Applied Psychological Measurement (1977).

Malcolm, Paul J.
Lutz, William C.
Gerken, Mary A.

Learning Style Identification Scale

Instrument designed to identify five different learning styles of students grades K-12. For example, Style 1 students tend to demonstrate anti-institutional behavior. Awareness Response Instruction, Omaha, Nebraska.

Young, Dorothy

Kindergarten Screening Test

Designed to determine pre-reading abilities of kindergarten children. Parkside Elementary, Blackwell, OK 74631.

Glossary

Glossary

Accomodator: Changes made to adjust to conflicting information and/or ideas, to fit a situation.

Affective Intera ction: To produce an effect, influence, modify - to produce a reciprocal effect.

Appositional: The information processing of the brain's right hemisphere in well later.zed right handers.

Arts Education: Provides regular instruction in arts disciplines -- music, visual art, dance, drama, poetry. Students may select from a variety of arts curriculum offerings which accommodate sequential skill development, K-12.

Arts Education, Specialized: See Specialized Arts Education.

Arts in Education (AIE): A comprehensive program best achieved by a balance of these three components: [1] arts education; [2] arts in basic education; [3] specialized arts education.

Arts in Basic Education: The integration of arts experiences in an intentional way to develop concepts in all curriculum areas.

Assimilator: One who incorporates new ideas, the assimilation of current linguistic ideas into reading theory and practice.

Assymetrical: Lack of proportion.

Auditory: Hearing process.

Auditory Constructed: Hearing sounds not heard before.

Auditory Digital: Talking to oneself.

Auditory Remembered: Remembering sounds heard before.

Behaviorally Complex: Extreme withdrawal/ aggressiveness, negative behavior which interferes with learning and social adjustment.

Cerebral Dominance: The greater control of behavior by one hemisphere of the brain than by the other.

Cognitive Style: Modification of mental structures.

Convergent Thinking: The ability to analyze and integrate in order to infer reasonable conclusions or specific solutions from given information.

Converger: That which unites in a common interest or focus.

Corpus Callosum: A band of nerve tissue connecting the cerebral hemispheres of the brain.

Creative Thinking: The development of a new thought or artistic effort.

Creativity: Inventiveness, originality.

Damaged Learner: Very broad category but merits discussion. These students are physically normal, but damaged in self-concept, social competency, aesthetic sensitivity or intellect so that they systematically avoid learning, reject learning, fantasize, or pretend that they are learning. The damaged learner needs special attention and treatment.

Directionality: The ability to perceive spatial orientation accurately, as up - down, right - left, front - back.

Diverger: The ability to elaborate and expand in order to generate new ideas or alternative interpretations of given information.

Dominance: The superiority of one hemisphere of the brain over the other.

Eclectic Learner: May shift learning styles and function profitably, may find one or another style more beneficial, but can adapt to and benefit from others. Historically, these students succeeded in our institutions because they adapted themselves from classroom to classroom and used whatever style was most advantageous at the moment. Teachers tend to prefer such learners.

Emotionally Involved: Function best in a classroom in which the atmosphere carries a high emotional charge.

Emotionally Neutral: Emotional tone is low-keyed and relatively neutral, intellectual rather than emotional, teacher is more objective and helps students to move from emotional expression to intellectual understanding and analysis.

Explicitely Structured: Teacher makes explicit a clear, unambiguous structure for learning with limits and goals. (What is unacceptable is carefully stated.)

Grammatic Logic: Correctness in language usage according to prescriptive grammar.

Holistic/Gestalten: A teaching/learning process approach that emphasizes wholes of subject matter and the integration of parts with wholes.

Hyperactive: Impulsive, restless. Students are usually impulsive, distractible and restless, as a result may have difficulty in school learning tasks.

Impulsivity: The inability to restrain or reflect upon one's responses; the tendency to make hasty actions, as in speaking before thinking.

Incremental Learner: Step by step, specific to overview: "brick layer" possibly would benefit from contemporary programmed materials.

Intuitive Thinking: The process, or result of perception or recognition that is immediate and direct rather than subjected to reflective thought.

Intuitive Learner: One who does not follow traditional logic, chronology or step by step, can make meaningful and accurate generalizations from unsystematic gathering of information and experience. Work faster, but may need to retrace their thinking and make explicit evidence for their conclusions.

Kinesthetic: (Sense of touch) feeling emotion.

Learning Styles: Distinctive behaviors which serve as indication of how a person learns from and adapts to his/her environment.

Learning Theory: An analysis of the process of adaptation.

Linear: Programmed learning, student makes a response and checks its accuracy at the next step of the way, step by step, to a desired learning goal.

Modalities - Preference - Methodology: Sensory systems of receiving, processing and responding to sensation. Some learn better through the visual modality than through the auditory.

Perceptual: The extraction of information from sensory stimulation.

Phenomenological: Environmental demands placed upon individuals.

Propositional: Describes the brain's left hemisphere dominance for speaking, writing, calculation and related tasks.

Predictor: The ability of a reader to predict or foretell how a written work will develop and end.

Open-ended Structure: The student feels at home and learns best in a fairly open-ended learning environment. Overall structure is visible but divergence is allowed for exploration of other relevant but not pre-planned phenomena.

Readiness: Preparedness to cope with a learning task. A holistic concept, not one specific trait such as mental age, as is sometimes assumed.

Receptive: The action of the sense organs or cognitive systems which are responsive to incoming stimuli.

Sequencing: The following of one thing after another, a continuous or connected series.

Sensory Generalist: One who uses all or many of the senses in gathering information and giving and gaining insights. Some are even oversensitive, having all "antennae" out. This student may need help in blocking out some stimuli in order to make use of most relevant or desired learnings. They may need to function in a setting where some sensory deprivation is purposely arranged, e.g., use of a three-sided screen or study carrel.

Sensory Specialist: One who relies primarily on the sense (e.g., visual, auditory, kinesthetic, etc.) for the meaningful formation of ideas. While other senses are intact and functioning, one sense tends to dominate. Because the learner's "sensory specialty" is but a small segment, the shotgun presentation method is not particularly efficient and carries the danger of boredom due to repetition.

Simultaneously: Existing, occurring at the same time.

Spatial Localization: Existing or occuring in space.

Specialized Arts Education: Arts experiences specifically designed for the exceptional child (gifted/talented or handicapped) to meet their special needs.

Stringers: A style of learning that requires a systematic, methodical approach to any subject under study.

Symmetrical: Well proportioned, regular in form or arrangement of corresponding parts.

Syntax: The study of the structure of grammatical sentences in a language.

Synthesis: The combination of parts or elements, as material substances or objects of thought, into a complex whole.

Tactile (tactual): Providing information to the sense of touch, tangible.

Tonal Patterns: Harmonious effects of subtle use of light and shade, rather than by contrasts of color.

Verbal: Having to do with words, as verbal fluency.

Verbal Constructed: Relation of thought and word, thinking in words.

Visual: Having to do with the eyes or with sight, as a visual method, a visual interpretation.

Visual Remembered: Seeing images of things seen before, in a way they were seen before.

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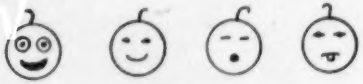
Evaluation

Circle the appropriate response to show us what you think:

1. These Learning Styles Resource materials are:



WOW GOOD OK YUK

I get the message YEAH

It rings a bell

I see the picture

2. The activities in this guide are:

Wonderful!

Fun & Useful

Too hard to do

Boring

3. What will you do with this guide?

a. I am using it

b. I have used it

c. I intend to use it

d. I never want to use it